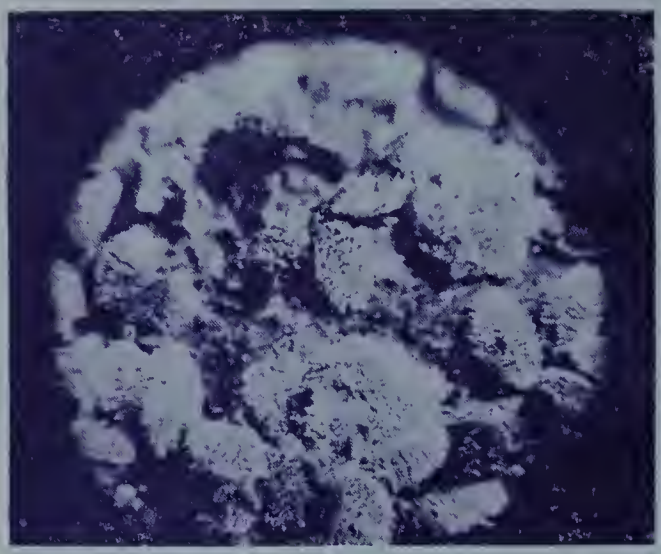
JAN.-FEB., 1958 25 CENTS

The Green Thumb

COLORADO'S GARDEN MAGAZINE





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Seeds, fertilizers, insecticides, trellises, planters, large flower pots, peat, and potting soil.

The Green Thumb

Vol. 15. JANUARY-FEBRUARY, 1958 No. 1

Colorado Forestry and Horticulture Association

Organized in 1884

"To preserve the naturol beauty of Colorodo; to protect the forests; to encouroge proper maintenance and odditionol plonting of trees, shrubs ond gordens; to moke ovailoble correct information regarding forestry, horticultural practices and plants best suited to the climote; and to coordinate the knowledge and experience of foresters, horticulturists ond gardeners for their mutual benefit."

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Editor.....*Patrick J. Gollovon*

GREEN THUMB WRITER'S CONTEST

The Green Thumb offers a first prize of $25 for the best story on "How I Developed My Backyard Garden." Second and third prizes will be $10 and $5 respectively. This contest is open to all members of the Colorado Forestry and Horticulture Assocation except to those on the Editorial Board. Stories should be 800 to 1000 words in length and may or may not be accompanied by illustrations. Illustrations should be glossy photographs, or drawings. This contest closes the first of April 1958. Entries will be judged on the originality and ingenuity of the author, and will not be returned unless specified and accompanied by return postage. The best stories will be published in The Green Thumb at a future date. Send stories to The Green Thumb, 1355 Bannock Street, Denver 4, Colorado.

COLORADO NURSERYMEN AND ARBORISTS MEETING FEBRUARY 10-11

The annual Short Course for the Colorado Nurserymen and Arborists will take place at the Student Union Building on the C.S.U. campus at Fort Collins, Colorado, February 10th and 11th. This annual meeting helps nurserymen and arborists keep abreast of new developments and progress in their fields. This year's topic will include talks on the Modern Garden Shop, Merchandising, Weed Control, Fertilizing, and will have special workshop sections. These meetings are open to anyone interested in these fields. Registration will begin at 9:30 a.m., Monday, February 10. A joint banquet will be held Monday evening.

PATRICK J. GALLAVAN.....*Editor*.....MRS. HELEN FOWLER.....*Librarion*

MELANIE BROWN, *Asst. Editor and Librarion*

MR. AND MRS. EDWARD J. VINCENT, *Custodians*

Published Monthly. Sent free to all members of the Associotion. Supporting membership, $3.00; Active, $5.00; Contributing, $10.00; Patron, $25.00; Donor, $100.00. Copyright 1958 by:

THE COLORADO FORESTRY AND HORTICULTURE ASSOCIATION

A non-profit, privotely financed Association

1355 Bannock Street • Denver 4, Colorado • TAbor 5-3410



The "Good Earth" contains many root-crippling pests that rob your prized shrubs, flowers and vegetables of: health, strength and beauty.

Foliage sprays and dusts can't reach these pests. So, no matter how much you spray or dust the foliage, damage from root-crippling pests goes on and on.

Now, with 'Fumi-Soil' capsules, you can kill these root-crippling pests.

'Fumi-Soil' is safe, accurate and easy to use —there's nothing to mix—no liquids to measure—just bury a capsule—a powerful soil fumigant is soon released that kills: Nematodes, Ants, Centipedes, Grubs, Larvae, Sow Bugs, Wireworms and many other root-crippling pests —rids your lawn and garden of moles too! Use 'Fumi-Soil' any time during the growing season to protect perennials—To protect annual flowers or vegetables treat beds in the fall or two weeks before spring planting.

And the cost is low—only 3½c to 6c to protect one perennial plant for an entire season. Get 'Fumi-Soil' today at your Garden Supply Dealer.

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MEMO

Calendar of Events

"Fun with Flowers" — A lecture and demonstration is followed by the making of arrangements. Each person brings containers, mechanics, and material. The workshops are open to everyone. Due to popular demand the workshops will be held each month at the following times and places:

Workshop No. 1 — 1422 Kenton, Aurora, First Monday, 10:00 a.m. Chairman: Mrs. Fred Harper, 270 Jersey, Denver.

Workshop No. 2 — Lakeside Denver Dry Goods, 44th & Harlan, Denver, First Tuesday, 10:00 a.m. Chairman: Mrs. C. C. Buckbee, 4190 Depew, Denver.

Workshop No. 3 — Englewood State Bank, 180 East Hampden, Englewood, Second Wednesday, 10:00 a.m. Chairman: Mrs. H. E. Cluphf, 3888 South Grant, Englewood.

Workshop No. 4 — Arapahoe County Fair Grounds, W. Belleview & Windemere, Littleton. Third Tuesday 10:00 a.m. Chairman: Mrs. John Sobilla, 386 North Windemere.

January 27, 28, 29 — State Soil Conservation District meeting, Shirley Savoy Hotel. Registration 9:00 a.m. Monday the 27th.

February 5 — Botany Club meets the first Wednesday of each month, 7:30 p.m. Horticulture House, 1355 Bannock.

February 10-11 — Arborist Short Course, Student Union Building, Colorado State University campus, Fort Collins. Registration 9:30 a.m. February 10.

February 12 — Organic Garden Club meets the second Wednesday of each month, 8:00 p.m. Horticulture House.

February 13—Annual Banquet of the Colorado Forestry and Horticultural Assoc., Denver Continental, 2601 Zuni, at the end of the 14th Street viaduct. The public is cordially invited.

February 24 — African Violet Club meets the 4th Monday of each month at Horticulture House at 8:00 p.m.

Green Thumb Program — 8:50 a.m. each Saturday KLZ, 560 on your radio dial. Pat Gallavan, Horticulturist.

ANNUAL DINNER AND BUSINESS MEETING

of the

COLORADO FORESTRY AND HORTICULTURE ASSOCIATION

Continental Denver

THURSDAY EVENING, FEBRUARY 13, 1958

2601 Zuni, at the end of the 14th street viaduct,

easy to get to, with plenty of free parking space and a beautiful view of Denver at night.

Cocktails at 6:00 p.m.—Dinner at 7:00 p.m.

DR. JOHN MARR

from Boulder, will be guest speaker

Be sure to make your reservations early this year!
Last year we regretfully had to turn down late ones.

Tickets are available at Horticulture House

Rocky Mountain Horticulture is still different, so we need to learn *how to make good gardens in the sunshine states.*

ANNUAL PRESIDENT'S REPORT COLORADO FORESTRY AND HORTICULTURE ASSOCIATION

By KENNETH WILMORE, *President*

The annual report for the year 1957 is most gratifying to give to you at this time. It is a tribute to members and all others who helped the Association make 1957 the most successful year in its history, financially, in membership, and in other participating activities.

Only through the full co-operation of these individuals during the past year could my report be as optimistic as it is.

We started with a most successful annual meeting at the Denver Country Club in which your president and new board members were elected.

The Board of Trustees met at Horticulture House each month with a very fine turnout at every meeting. Much of the success of this fine attendance was due to the delightful lunches provided by Mrs. Charles Enos and her daughter Becky.

Through these meetings our programs were formulated.

It would be impossible for me to name every person who participated in the following activities, so with your permission, I will mention in this report only the chairman and some of the key workers. I wish I could give due credit to everyone individually, but the scope of our activities was so great this year that space simply will not allow it.

Along with the Board of Trustees meetings, we also had regular meetings of the Finance Committee under the very able chairmanship of Armin Barteldes with Lemoine Bechtold, Fred Johnson, and Herb Gundell preparing our excellent financial reports throughout the year.

The Editorial Committee under the chairmanship of Walter Pesman did a fine job of editing and screening articles for The Green Thumb. The overall quality of our magazine reflects the efficiency of this committee.

Horticulture House had its walls washed, rugs cleaned, and chairs reupholstered under the able direction of Mrs. Frank McLister, Chairman of the House Committee.

The Colorado Forestry and Horticulture Association members have been represented in several important outside activities.

The Denver Street and Shade Tree Committee composed of representatives from the parks department, tree men, nurserymen, garden club members, and other competent business men was very active under the chairmanship of Fred Johnson.

Represented on the Board of Trustees of the Denver Botanical Gardens Foundation were Moras Shubert, Mrs. James Waring, Mrs. J. Churchill Owen, Mrs. George Garrey, Walter Pesman and your president, as an ex-officio member.

One of the most gratifying accomplishments of the year was the Membership Committee under the very able chairmanship of Clyde Learned. Clyde through personal contact has written up over 275

new members and stands alone as the top membership getter in the Association. Our membership stands at over 2,000 at the present time. It is the highest in five years and second highest in our history.

The two money making activities of the past year were highly successful.

The Look and Learn Tours under the fine leadership of Mrs. Charlotte Barbour and Mrs. Hugh Catherwood netted the Association over $1,100—far above the tours of past years. Mrs. Rose Hughes was very helpful in contacting experts for the tours. The highlight of our year's activities, however, came on May 3, 4, and 5. This was the first annual Garden Fair. The general chairman of the Fair was Mrs. Ed Honnen and few of us have ever seen a more masterful job of organization. Mrs. Honnen acquired the location at the Cherry Creek Shopping Center, arranged for the donation of the tents, arranged for many of the displays and donations personally and even had her husband Ed of the McCoy Caterpillar Co. level the ground at the site. Mrs. Honnen was ably assisted by a competent committee which deserves heartfelt thanks and recognition by your president in this report.

One of the outstanding (and profitable) features of the Garden Fair was the artificial fruit creations made and sold by Mrs. George Garrey, Mrs. Frank McLister, Mrs. Rulison Knox, Mrs. Alonzo Lilly, and Mrs. P. D. Whitaker.

Also our hats are off for a job well done for their work on the Fair to Mrs. Guilford Jones, Martin Bechtold, Mrs. John Mackenzie, Mr. Philip Alexander, Mrs. Judith King, Mrs. John Newman, Mrs. Henry McLister, Mrs. Hugh Kingery, Mrs. Wayne Stacey, Pat Gallavan, Mrs. James Waring, Bob Woerner, Scott Wilmore, Clyde Learned, and members of the Federated Garden Clubs.

There were many, many more too numerous to thank personally at this time, but the sincere thanks of the Association goes out to these other workers, without whom we could not have succeeded.

As usual, we received very generous donations from the nurserymen, seedmen, treemen, and many other individuals and business houses, only on a larger scale than ever before.

Our editor and horticulturist, Pat Gallavan, had a very busy year. He was general chairman of the convention of the American Horticultural Congress, co-sponsored by the Colorado Forestry and Horticulture Association and Colorado Nurserymen's Association. During the past year he has given 95 talks and lectures to live audiences, 52 radio shows, and 16 television programs, all under the sponsorship of the Association.

Horticulture House was a very busy place during the past year. Pat and his very efficient assistant, Melanie Brown, received more than 5000 telephone calls and 1700 letters. They also mailed out over 2,000 reprints of The Green Thumb.

Our Staff at Horticulture House is responsible for so much of our progress during the past year and our sincere thanks go out to Pat Gallavan, Melanie Brown and our newly acquired custodians Mr. Edward J. Vincent and his wife, Mrs. Vincent, who doubles as Assistant Secretary and Treasurer.

Again we would like to extend

our thanks to Mr. and Mrs. John Evans for their ever-generous donation to Horticulture House.

This is the report for 1957. I only hope that the 1958 report can show the forward strides we have taken this year.

I would like to thank personally all of the wonderful people who worked with me during the past year.

I believe we have reached a milestone in horticulture in Colorado, but let us not ever lose sight of our purpose which is to make available accurate information to everyone who is interested in horticulture and to make Colorado even more beautiful through proper horticultural practices.

A MOST SUCCESSFUL PLANT SALE was held in October through the generosity of Mrs. Jan Schoo, 2650 Dexter (De 3-1249). This happy inspiration took place in her home and was sponsored by Horticulture House for the benefit of the Association. African violets, all organically grown, are her specialty and were offered for sale along with perennials and annuals. Mrs. Schoo has been an active and loyal member ever since she came to Denver from Switzerland many years ago, and her tiny but fascinating garden, which is frequently on our Look and Learn Garden Tours, is always a rewarding experience to visitors. In Switzerland Mrs. Schoo was a practicing child psychiatrist with an avid interest in gardening even then. Those of you who missed out on the October sale can still purchase some African violets. Proceeds, of course, go to Horticulture House. Many thanks, Mrs. Schoo, for your interest and generosity. And last but not least, a thank you to those who have already made purchases although we're sure that the possession of such beautiful and healthy plants is thanks enough.

It is no longer necessary for any good gardener in the area to send out-of-state for rare or unusual plants, and take the risk of getting unsuitable things or have them arrive half dead.

THE COTTONWOOD GARDEN SHOP

will have about 450 varieties of ornamental plants including many of the "impassible" things to experiment with, and in addition to this will have accurate advice as to the best locations and care for each plant.

STOCKS READY MARCH 15TH.

COME SEE US EARLY.

George & Sue

4849 S. Santa Fe Drive, Littleton, Colo. **PY 4-0430**





Arrangement of the Month

The Hogarth curve shows to advantage this brown pottery coffee jug. Its lower curve repeats the line of the wooden handle. Florist wire was used to reinforce and lengthen stems. The economy of material in this arrangement even allows the copper band, that binds the handle to jug, to be seen. Bittersweet, goldenrod, and yellow to copper-toned strawflowers make this a blue ribbon winner in a recent dried flower show of Home Garden Club. Arrangement by Mrs. J. P. Steele, Jr.*Photo by Ray Turnure*



ANOTHER MISS AMERICA FROM COLORADO, MAYTIME PETUNIA, HYBRIDIZED AND INTRODUCED BY PAN AMERICAN SEEDS CO. IN PAONIA

THE NEW 1958 ALL-AMERICAN SELECTIONS

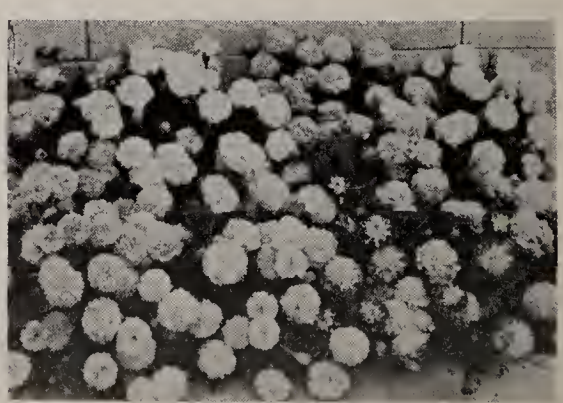
Everybody loves a winner, so here are the 1958 winners for better gardening.

Maytime petunia brings us a new color, soft salmon pink, in large-flowered ruffled grandiflora bedding petunias. It is a beautiful, free blooming, vigorous hybrid.

The other flower award goes to a new Petite type or class of very dwarf, very early, and small flowering, double French marigold. Actually, there were three varieties or colors entered in this Petite group: Petite Gold, Petite Orange and Petite Harmony, the latter being a bicolor of maroon red with a crest of gold. Another, of lemon yellow, is now available. All being considered of equal merit and desirability, the award is given for the new type, only 6 to 8 inch mounded plants and covered with little pompom-like blooms. They seem perfect for uniform edging and low beds, the earliest marigolds to flower.

For the culinary delight of those so fortunate as to have a vegetable garden plot, and every home should have one, the competitive trials demonstrated superiority of several new vegetables over similar kinds already in garden use.

Pearlgreen bush snapbean brings a white-seeded greenpod bean of the most popular Tendergreen type. Tendergreen has held its quality and popularity since winning in 1932, a remarkable record, even with its



Petite Marigold







Upper left: Pearlgreen snapbean

Lower left: Choctaw Wax bean

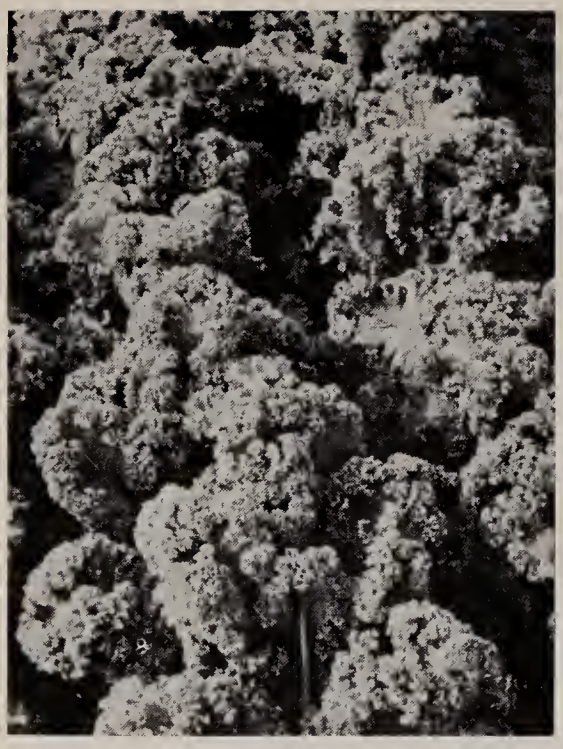
Right: Ruby Queen beets

dark colored seed. Pearlgreen, the only silver medal winner, now may be used for all purposes: fresh snaps, canning, freezing, and dry shell beans. Of course it is stringless and fiberless at tender eating stage and is a prolific bearer.

Not to be outdone by greenpods, Choctaw Wax is a rich yellow podded bush bean of exceptionally heavy bearing qualities. It shows its superiority over Cherokee Wax, a former winner, and others, for those who favor wax or yellow-podded snapbeans. It is stringless and practically fiberless at eating stage, an enticing dish.

Ruby Queen beet is the newcomer with globular roots of richest blood-red interior for the main crop. The tops are of rich green, fine for "greens," and plants are attractively bunched if used for market.

Green Wave Mustard is the beautifully curled, longest standing variety before bolting to seed. So, it can be used over a longer season than other varieties. This "Ostrich Plume" or Giant Southern Curled type is the best and most popular mustard for greens, standard throughout the south and becoming very popular through the northern states.



Greenwave Mustard

Ruby lettuce is a floral treat. It may well grace the flower border. It is colorfully curled and ruffled, the reddest of all. Of the desirable loose-leaf type, instead of market head lettuce, it holds its rich bronzy red color even in sun and heat. Ruby is an extra fancy salad lettuce and should also completely take the place of red cabbage, used for color, in mixed salads.

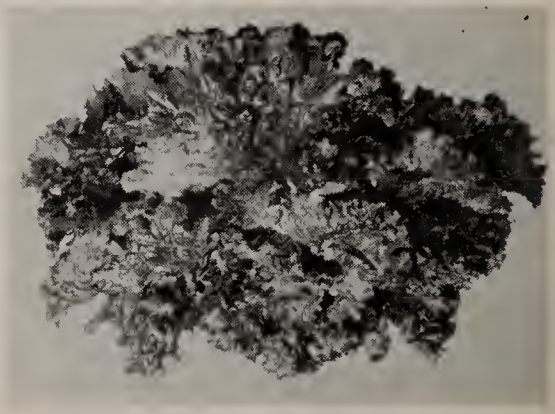
You may know that All-America Selections, Inc. is the non-profit research organization for pre-introductory testing and screening of proposed new varieties from around the world. Twenty-six flower and twenty-three vegetable trial grounds with qualified resident judges in charge, grow and compare the promising new varieties with the best similar kinds already in commerce. All climatic zones and sections of the United States and southern Canada are represented.

For award recommendation by a judge, a new variety must show distinctiveness, useful purpose, and desirability. It must be superior to others of its kind or for its purpose under soil and climatic conditions at its trial location. Total award points, from all the flower or vegetable judges, determine which varieties are to be considered for award.

Seeds of the many entries are sent to each judge under kind and number, only for identification, but with claims of the entrants for careful checking and nearest varieties to plant for comparisons. Entries are received from amateur as well as from professional breeders and government agencies.

All reputable seed firms have equal opportunity to obtain seeds of the winners for co-operative introduction. Gardeners are thus able to purchase seeds of these finest new varieties conveniently through usual sources of supply. However, gardeners must order these new varieties early. The demand is always much greater than first season supply. Now is the time to order.

Maytime petunia adds the most delightful new light salmon pink color to this new class of large-flowered, ruffled and fringed hybrid petunias. Belladonna in rose, Prima Donna in pink, Fire Dance in scarlet, are recent winners in this gran-



Ruby Red Lettuce

diflora class of bedding petunias. They are vigorous bloomers all season long. Maytime grows 12 to 15 inches tall and a single plant is over 24 inches across. Flowers measure 3 to 4 inches. For cut-flower arranging, it is superb, glowing in artificial light as well as outdoors. Be sure to plant Maytime this year.

Petite Gold, Petite Orange and Petite Harmony are marigolds. Take your choice for color. For pot and rockery plants, uniform low bedding edging of borders, walks, drives or lawn, these annual dwarf hedge plants cover themselves with glowing color from midsummer until frosts. Flowers are fully double, an inch or more across, on short, sturdy stems above the luxurious deep green foliage. They are the earliest to bloom and the miniatures of the favorite marigold family.

Pearlgreen snapbean is a tender, high quality, round-podded variety. Its chief advantage over the most popular Tendergreen type is having white seeds and usually heavier crops of pods. Plants are vigorous. The "meat" of the vegetable garden, a pot of these snaps boiled with a sizeable chunk of salt pork is a meal by itself.

Choctaw Wax snapbean is colorful for boiling, pickling, canning, and freezing. Long oval shaped pods add attractiveness, quality is good, and its highest productiveness is outstanding. Bushes are strong growers and Choctaw appears as the best of all wax or golden yellow-podded snapbeans.

Plant Ruby lettuce in your flower garden if you are not so lucky as to have a kitchen garden. Pull its tender leaves as it grows for colorful salads and combinations. The fancy curled leaves make attractive and tasteful garnishing, inviting sandwich fillers in ruby or bonzy red for crisp and tender young fresh lettuce as well as for innovation and novelty. It is of easiest growth.

Ruby Queen beet was selected for its short stems and rich leafy tops but chiefly for its grand rounded shape and solid red interior color. A heavy producing, main crop variety, it is desirable for all purposes: slicing, pickling, canning and marketing. Roots are very smooth and attractive and the tops make splendid boiled greens, alone or mixed with mustard, turnip, spinach or kale.

Green Wave Mustard is used almost entirely for "greens" although the thick fringed leaves are a garnishment. Its taste is piquant and tangy, a growing favorite for boiled greens. This too can grace the flower garden and may be used over a longer season than the previous winning Giant Southern Curled Longstanding mustard. Try Green Wave for pungent greens.

And, may you have a home vegetable garden with superior fresh vegetables, impossible to buy, in 1958. Everybody can have flowers and "It's not a home until it's planted." Happy gardening.

—W. RAY HASTINGS

SOMETHING SPECIAL will be offered by the Botany Club February 5. Ruth Ashton Nelson, nationally known botanist and author of "Plants of Rocky Mountain National Park," will show colored slides and give a short lecture. The public is cordially invited and all members are urged to take advantage of this fine opportunity.

WINTER BIRDS OF THE DENVER AREA

By DONALD M. THATCHER, *Colorado Bird Club*

We often suppose winter months to be a time of scarcity of birds and other wildlife. But, to those who know the birds and how to find them, winter is fully as interesting as any other time of year.

When summer birds have raised their families and ceased singing, some of them have changed to somber winter plumage and many have departed southward, their places filled by others come south to us from more northern regions. Generally speaking, with the small birds, the insect-eating summer birds are replaced in winter by more northern fruit or seed-eaters. The strictly insectivorous species, as the nighthawks, swifts, swallows, flycatchers, warblers, vireos, and some that are mainly insect-eaters, including tanagers, orioles, and certain finches, must pass the winter where they can obtain sufficient insect food for survival. Their winter replacements are largely insectivorous while in their northern summer homes, but these need only a plentiful supply of seeds and small fruits to carry them through the cold months. On the other hand, the water birds—ducks, geese, herons, gulls, cormorants, and others — and the shorebirds, the majority of which are hardy enough to breed in or near the arctic regions, move southward largely because they require open, unfrozen water for feeding or resting, or both.

Another group of birds, the so-called "birds of prey" — hawks and owls — migrate more or less irregularly, in response to heavy snows or to cyclic shortages of the small rodents forming the bulk of their diet. In this region, several of the mountain species merely make a short vertical migration to lower slopes or into the plains, instead of taking a long trip southward.

Although in this region, winter birdlife is somewhat less abundant than that of other seasons, the winter months, with predominantly moderate, pleasant weather, are in several respects the best time for studying birds. Finding and observing birds is facilitated by the absence of foliage on aspens, cottonwoods, and other deciduous trees and shrubs. There are no troublesome insects, and few such plants as poison ivy and nettles which add to the discomfort of the summer heat. Many birds seem to be less wary in winter than at other seasons and can be observed more closely. Winter is a good time for the beginning birder to start, when there are fewer kinds to confuse him than at other seasons. And, to the experienced birder, winter is the most likely time for "surprises" — unexpected birds or unusual numbers. Just as ducks and other water birds are seldom found away from water, each species of land bird has its preferred habitat. Certain species prefer the open, short-grass prairie; others favor cattail swamps, bushy ravines, wooded stream-bottoms, coniferous forests, scrub oak, rock cliffs, or alpine tundra. Some limit their surroundings almost entirely to stands of one kind of tree or other plant.

Many "Green Thumb" readers are doubtless familiar with the five ecological life zones of the biologist included within Colorado. These are well explained from the botanist's viewpoint in the book "Meet the

Natives" by M. Walter Pesman and from that of the ornithologist in "The Birds of Denver and Mountain Parks," by R. J. Niedrach and R. B. Rockwell. The life zones, as listed in these two works in different terms are: Upper Sonoran (Niedrach and Rockwell) or Plains (Pesman), Transition or Foothills, Canadian or Montane, Hudsonian or Subalpine, and Arctic-alpine or Alpine. Just as the botanist recognizes these zones by their chief plant components, the zoologist might, if he desired, ignore the trees and other plants and identify any zone by its bird or other animal life, allowing, in the case of most birds, for seasonal movements. Denver, at the edge of the Upper Sonoran zone, with the four life zones of the mountains close at hand, is unusually well-situated for variety of wildlife habitats. Dry prairie, farm land, lakes, river bottoms and rock cliffs are readily available to the nature student. Only a few miles to the west and south are scrub oak, ponderosa pine, and douglasfir of the Transition zone; lodgepole pine, Engelmann spruce and aspen of the Canadian zone; slower growing spruce, alpine fir and limber and bristlecone pines of the Hudsonian zone and, above timberline, the tundra of the Arctic-alpine zone.

Of the more than four hundred species of wild birds recorded in Colorado (some perhaps only once or twice), approximately 350 are known in the area lying within thirty or forty miles of Denver. Of these, 265 are more or less regular in their occurrence during some part of the year, many as permanent or seasonal residents, and others only as transients in migration. Regular winter bird species number about 90, of which 65 are present throughout the year and the others are more northern breeding species. Four or five additional are frequent, but irregular winter visitors—rare or entirely absent during some winters and common or abundant in others.

At Christmas time each year ornithologists, both amateur and professional throughout the country, conduct a one-day Christmas Count, an activity originated in 1900 and now co-ordinated and published by the National Audubon Society as a substitute for the then popular (and since outlawed) useless and wasteful Christmas shoot. Members of the Colorado Bird Club have participated for several years, covering plains, stream bottoms, and foothills within a circle fifteen miles in diameter, immediately southwest of Denver. The last five counts included 80 to 86 species each, for a five-year total of 114 species. A similar count by some of the same observers in the mountains in the vicinity of Idaho Springs and Georgetown has found 25 to 34 species each year, in five years totaling 44, three of which species did not occur in the lower areas near Denver. Although several of these 117 species are late fall migrants still headed southward, occasional individuals of all sometimes remain through the winter.

The following are discussions by general bird groups, based partly on similarity of habitats or of habits and partly on taxonomic or other relationships, first of the winter birds of the plains, followed by those of the foothills and the higher mountains. Most species frequenting more than one life zone are considered with the zone in which they are most likely to be observed in winter. By far the greatest variety of winter birds in the Denver vicinity occurs in the several plains habitats, for all open water and the best supplies of

weed seeds, waste grain, wild fruits, and small animal prey are to be found there.

Waterfowl are among the most conspicuous and readily observed of winter birds as considerable numbers of more than a dozen species usually spend the entire winter on almost any sizeable lake, pond, or stream that offers some open water. Most numerous and best-known is the green-headed Mallard, which occupies most of the lakes of city parks and the reservoirs about Denver, and which feeds at night in the fields. The smaller Shoveler, although its regular winter range is south of here, winters in considerable numbers in the shallow park lakes, particularly Berkeley and Rocky Mountain, where large, close groups revolve as they feed on tiny organisms in the water. Other surface feeding ducks are frequent winter residents in small numbers: Pintail, American Widgeon (Baldpate), Gadwall, the little Green-winged Teal, and an occasional one or two of the beautiful Wood Duck. Of the diving ducks, the Common Goldeneye, black and white with a large white spot before the eye, is most common, with its brown-headed mate, in small numbers, on many lakes and the larger streams. A few other diving ducks, principally Redhead, Canvasback, Lesser Scaup and Bufflehead usually winter this far north. The Common Merganser is fairly numerous where small fish are plentiful, being more useful than not in reducing undesirable non-game fish. The Red-breasted Merganser and the handsome Hooded Merganser are occasional winter residents. In one or two places where it is well protected, the Canada Goose is locally common. Sometimes one or two of the smaller White-fronted and Snow Geese or the Whistling Swan may winter with the Canadas.

Of other classes of water birds, an infrequent one or two of Great Blue Heron, Pied-billed Grebe, or Coot may winter on or about sufficient open water with cattails for protection. Only two shorebirds winter in this area—both fairly commonly: the noisy Killdeer, which feeds along streams and lake shores and often in plowed fields, and the inconspicuous Common Snipe (formerly Wilson's Snipe or Jacksnipe), frequently flushed from the grassy shores of streams and sloughs or prairie marshes. One "seagull" is a fairly common winter resident, the Ring-billed Gull, identified by its greenish feet and black ring about the bill; occasionally, the larger Herring Gull, with pinkish feet, and rarely one or two other large gulls occur.

On a winter drive in the plains about Denver, one might find several species of hawks, but these valuable birds, because of the unjustified persecution to which they are subjected, and in spite of laws to protect them, are much less numerous than formerly. The large, heavy-bodied hawks perched in cottonwoods along streams or soaring in circles overhead are extremely useful consumers of rats, mice, ground squirrels, and other rodents; they are usually either the dark, black and white Rough-legged Hawk from the arctic, the year long resident Red-tailed Hawk or the less common reddish Ferruginous Hawk. The fairly numerous Marsh Hawk, slender, long-winged, brown or light gray with a white rump, flies low over prairies, pastures, and meadows in search of meadow mice. Two large, pointed-winged falcons, the bluish Peregrine Falcon and the lighter, gray-brown Prairie Falcon

are much less frequent; they occur usually about water or cliffs. A smaller falcon, the Pigeon Hawk (so named because of its resemblance in flight to a pigeon) or Merlin, a frequent winter visitor and the brightly colored misnamed Sparrow Hawk, smallest of our hawks, a common permanent resident whose diet is mostly mice and large insects, often perch on poles, wires, or fence posts along the roadside. Two other hawks, the little Sharp-shinned and the larger Cooper's, both dark gray above and reddish below with long tails and short rounded wings, frequent wooded places, and sometimes city parks and residential areas; these prey more on birds than do other hawks, but are believed by ecologists to be extremely useful in helping to maintain the balance of nature and the vigor of their prey species. The large Goshawk, similar but pale gray beneath, sometimes invades the plains in winter, but is more numerous in the mountains. Along the edge of the foothills, the Golden Eagle and sometimes the Bald Eagle are frequent—the latter especially near water.

Several owls are more common in this area than is generally supposed because of their nocturnal habits, but, like the hawks, they are unjustly persecuted and greatly reduced in numbers. Largest and commonest of these is the Great Horned Owl, frequent in the cottonwoods along streams, sometimes nesting there in late winter, and often seen in the city parks. Other winter owls, all very useful rodent eradicators; are the Long-eared Owl of brushy ravines and wooded places, sometimes occurring in small flocks; the more northern Short-eared Owl, preferring cattail marshes; and the little grey Screech Owl of woods and suburbs. Occasionally, the little Saw-whet Owl and the even smaller, robin-sized Pygmy Owl, both mountain birds, occur in dense growth near the edge of the plains, the former active at night and the latter mostly by day.

Two species of wildfowl occur on the plains near Denver with sufficient brush or weed cover along roadsides, fences, and streams. The well known introduced Ring-necked Pheasant is fairly common about irrigated land. Coveys of eastern quail, the Bobwhite which was probably introduced locally, are frequent near the South Platte River northeast of Denver and a few occur near the city. During some winters, scattered individuals or small flocks of Mourning Dove, abundant and well known in the warmer months, remain in this area, mostly about irrigated land with plenty of weed seed or waste grain.

There are several permanent resident woodpeckers in Denver and the surrounding country. Most common is the noisy, friendly Red-shafted Flicker, a large, brown woodpecker with salmon-red wing and tail-linings and conspicuous, white lower back; it survives the winter very well, largely on ants obtained

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from lawns and on small fruit such as that of the Virginia Creeper. The two black-and-white woodpeckers, the robin-sized Hairy and the similar, smaller Downy are frequent wherever there are trees harboring boring insects; these two and the Flicker are fond of suet when other food is difficult to obtain. A few of the oddly-colored Lewis' Woodpeckers, greenish-black with red face and pinkish underparts, resembling in flight small crows, winter in the cottonwoods in the suburbs; this species is decreasing in the Denver area, probably largely because its nesting cavities have been usurped by the recently arrived Starling. Rarely a Yellow-bellied Sapsucker will winter with us, and visit feeders for suet.

Two small birds always associated with water are interesting winter birds on the plains about Denver. The gray-blue and white Belted Kingfisher, usually singly, frequents rivers, creeks, and lakes in and about the city, feeding on small fish obtained by hovering and diving. The Dipper—a strictly western oddity of the bird world—small, slate-gray, with short tail usually held upright and a peculiar bobbing or dipping habit, subsists on insects and other small, aquatic animals on the rocks and in the water of streams; it follows the freezing mountain stream that is its summer home down to the plains and sometimes occurs even in the heart of Denver, on Cherry Creek.

The crow-jay family is represented about Denver by several more or less permanent residents. Most noticed and abundant is the long-tailed, black and white Black-billed Magpie, in winter flocks sometimes in hundreds, about wooded creek-bottoms and some of the city parks. The Common Crow also occurs in flocks, usually near the foothills, where it feeds in last year's grain fields. Accompanying the crows are often a few of the much larger Common Raven, recognizable by wedge-shaped tail, sailing or soaring flight, and harsher call. The crested, eastern Blue Jay, medium blue above with white underparts, is an uncommon resident of wooded creek bottoms. A few pairs of its cousin, the well-named Scrub Jay (formerly California or Woodhouse's Jay), also blue but without a crest, occur in the drier scrub oak to the south of Denver, or, less frequently, in brushy gullies nearer the city.

Several small species whose food is mostly insect eggs and dormant insects gleaned from the bark and twigs of trees form an interesting group of winter birds. These are extremely sociable and usually travel in mixed flocks of several species. Perhaps best known about Denver is the friendly Black-capped Chickadee, with black cap and bib, a year-long resident of deciduous woods and city parks. The Mountain Chickadee of the western mountains, similar, but with his black cap broken by a white line over the eye, is numerous during some winters on the plains and in the city; it is usually partial to spruce or pine and is often even more friendly than the Black-cap. Two up-side-down Nuthatches, the White-breasted and the smaller Red-breasted, readily identified by the black line through the eye of the latter, come down to the plains in winter, but mostly remain in the coniferous forest of the mountains. Chickadees and nuthatches are fond of suet and sunflower seeds on your feeding shelves. A tiny, long-tailed, gray-brown bird with a stubby bill, the Common Bushtit, prefers shrubbery and juniper trees; although it is generally a rare winter

visitor about Denver, an unusual invasion of several small flocks spent the winter of 1956-57 in the city parks and the lower foothills. A slender, bark-colored, brown bird with stiff tail and long curved bill, climbing like a woodpecker, is the Brown Creeper, another mountain bird which winters commonly on the plains, often in the city. The two Kinglets, tiny and greenish, complete this group: the Golden-crowned, with black, white, and orange or yellow striped head, and the Ruby-crowned, with white eye ring and seldom-seen bright red crown patch; the former is the commoner in winter, few of the Ruby-crowned remaining so far north. A few individuals of several wrens winter where they can find sufficient quantities of insects and similar food. Commonest is the Canyon Wren, reddish brown, with white throat, which runs over rock cliffs like a mouse and is more often heard than seen; its beautiful song is often the highlight of a winter trip for birds. A few can usually be found about the cliffs at Red Rocks Park and in the steeper of the foothill canyons. The grayish Rock Wren is more migratory, but an occasional one winters here in loose rock slides or about cliffs. Nearly every sizable cattail marsh has its wintering Long-billed Marsh Wren, readily identified by habitat and white-streaked back, but seldom seen, as it keeps well hidden. A search of densely brush-covered ravines will sometimes produce a Winter Wren, tiniest of the wrens, with stubby, upright tail and the habit of hiding almost under one's feet. The House Wren, common foothill summer resident and the larger southern Carolina Wren, have been known to winter here successfully. The Brown Thrasher and the

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light-gray Mockingbird, larger relatives of the wrens, occasionally winter in sheltered places on the plains, subsisting on insects and small fruits.

Of the thrush family, the Robin is the most numerous in winter, present sometimes only as a scattered few and in other years by the hundreds in and about Denver, its abundance apparently dependent upon the supply of Russianolives, juniper berries and other small fruit. Although there were almost no Robins present at the time of the 1956 Christmas Count (only three were recorded in this vicinity), thousands in spring migration appeared two or three weeks later in mid-January 1957 throughout northeastern Colorado. More consistent is the Townsend's Solitaire, a bird of the mountains, usually solitary, grayish with white eye-ring and buffy wing bars, occurring regularly along the edge of the foothills and frequently in city parks; it feeds in winter on juniper and other berries. Bluebirds are extremely scarce in winter; only the all blue Mountain Bluebird can be expected before early spring. The red-breasted, red-backed Western Bluebird is sometimes a very early migrant in February and the red-breasted Eastern Bluebird has occurred in the city in mid-winter.

Large flocks of the Bohemian Waxwing, crested, sleek, grayish-brown, with reddish color under the tail and white in its wings, invade the city and environs at intervals of several years; its abundance in the winter of 1956-57 was the first in ten years. A smaller relative, the Cedar Waxwing, browner and with yellow underparts, is fairly regular in winter, but seldom numerous. Both are eaters of small fruits and are readily detected and identified by their rasping or hissing calls.

A solitary, robin-sized gray bird with whitish underparts and black on wings, tail, and sides of head, perched usually on a fence post or tree top in open country, is the Northern Shrike, a regular winter visitor from the far north, or, infrequently, the smaller Loggerhead Shrike, a common summer resident; the shrikes feed on mice and large insects, occasionally a small bird, and were formerly known as Butcher Birds, from their habit of impaling their prey on thorns or barbs.

Large, close flocks of dark birds often of two sizes, which seem to weave up and down within the flock in flight, are Redwinged Blackbirds. These birds roost at night in cattails and feed mostly on waste grain in fields or about corrals and barn yards; they are by far the most abundant of small birds in this region, except on the dry prairies. Two other blackbirds are infrequent in winter: the all black (females are gray) Brewer's Blackbird, common near water in summer and found about farms in winter, and the northern Rusty Blackbird, blue-black or gray with the feathers rusty-tipped, partial to grassy marshes. The well known Western Meadowlark, brown above, yellow below, with white outer tail feathers, winters in small flocks in dry grassland and is common in winter; its delightful warble is given on warm days throughout the winter months.

The most numerous winter bird of the dry, short-grass prairies is our only true lark, the Horned Lark (the Meadowlark is not a lark but a blackbird), slender billed, brown above and white below, with black markings on breast and face, and with a black, white-edged tail; it

often occurs in huge flocks along roadsides, feeding on weed and grass seeds and waste grain. The Water Pipit, an abundant summer resident in the tundra, above timberline, is somewhat similar but plainer, buffy below and with similarly colored tail; it is infrequent at this latitude in winter, but is sometimes found in small numbers about open lakes and streams.

A blackish bird, smaller than the Robin, white-speckled in winter, with short tail and long, sharp beak, occurring about farms and in the city, often in large flocks, is the Starling. This newcomer to this area was introduced in the east nearly seventy years ago and has spread to Colorado, mostly in the last fifteen years. Although it is undesirable, at least to birders, because of its usurpation of the nesting holes of the Flicker, Lewis' Woodpecker, and other hole-nesting birds, it is nevertheless useful as a destroyer of introduced insect pests not recognized as good food by most of our native birds. The Starling has a variety of call notes and imitates native species, Chickadee, Killdeer, Sparrow Hawk, and many others, to perfection.

An earlier immigrant, better known locally, is the House (or English) Sparrow, not a member of the family of birds to which our native American sparrows have been assigned, although those birds too frequently suffer for its misdeeds. It is abundant about the city and farm buildings and offsets somewhat its undesirable qualities by destroying many insects and the seeds of crabgrass and other weeds. In winter it takes readily to artificial feeding and is generally the only small bird to eat bread crumbs.

In numbers of species, if not of individuals, the family of native seed eating finches and sparrows, known as "Fringillids," is the most important of our winter birds. More than twenty kinds occur more or less regularly in winter in the plains country about Denver, all but two or three almost always in flocks, large or small. Many of these come readily to suburban feeding stations, where their preference is for seeds, especially sunflower and millet, but their chief food is weed seeds.

Best known of the winter finches about Denver is the House Finch or Linnet, sometimes mistakenly called "Rosy Finch," a native of the Southwest deserts which has taken kindly to man and is now nearly as closely associated with civilization as is the House Sparrow, with which it commonly associates at feeding shelves about the city. Basically a light-brown streaked bird like his mate, the male House Finch sports bright red breast, rump, forehead, and line over the eye. A similar, somewhat larger mountain species, the Cassin's Finch, sometimes winters on the edge of the plains; compared with the House Finch, the female is darker, more heavily streaked and the male is less streaked below, with the red a darker, raspberry hue, extending over the entire

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crown. Three other sparrow-sized, reddish finches, the true Rosy Finches, are generally brownish, with the pale, rosy pink confined to the wings, belly and rump; quite different in pattern from the House and Cassin's Finches. The Gray-crowned Rosy Finch is medium brown with a large, gray patch on the sides and top of its head; the Black Rosy Finch is similarly marked but almost black, and the Brown-capped Rosy Finch is pale brown with little or no gray on the head. The last named is a Colorado native, nesting above timberline, while the other two come from farther north; the three occur on the plains near the foothills and throughout the mountains in mixed flocks, mostly Gray-crowns and very few Blacks, and roost about rock cliffs, frequently in those about the theatre at Red Rocks Park. Another reddish finch, an infrequent winter visitor in small flocks, is the Common Redpoll, smaller, gray-brown with red cap, black chin and (the male only) pink breast; beginners sometimes confuse the House Finch with this species, although the two are very different.

The Common Goldfinch is frequent in flocks, usually in stream bottoms; its winter dress is greenish, with black or dark brown, white-barred wings. A smaller relative, the Lesser Goldfinch, not often found in winter is similar, but the male sports a black cap. The little Pine Siskin, closely related to the goldfinches, is brownish-streaked, with yellow on the wings and tail; it is erratic in occurrence and is sometimes common about the city and suburbs. A large, robin-sized, yellowish finch, with black and white wings and stout, light-colored bill, is the Evening Grosbeak, another erratic winter visitor, usually in small flocks; it prefers such seeds as those of sunflower and boxelder and will crush cherry pits with its strong beak. One of the few non-flocking finches is the Rufous-sided Towhee (formerly known in the west as Spotted Towhee), black above, white below, with reddish sides and white spots on wings and tail; it is a ground bird confined to dry brushy places, where it is detected by its noisy scratching among the leaves. The handsome White-crowned Sparrow, brown above, gray below, with black and white striped head, also scratches for its living; it winters in fair-sized flocks in brushland, also about the suburbs and some city parks, and sings its sweet, plaintive song throughout the winter. Occasionally a flock may include one or two of its close relatives, the White-throated Sparrow and the black-throated Harris' Sparrow.

Usually the most numerous of the winter sparrows are the Juncos. Mixed flocks of three or four different species winter with us, generally in brushy places, a few in the city parks. Juncos are various shades of gray above with white or pale gray bellies and conspicuous white outer-tail feathers. The Oregon Junco is commonest; it has pinkish sides and its head varies from pale gray to nearly black. The Gray-headed Junco, conspicuously reddish-backed, and the eastern Slate-colored Junco with no reddish coloring at all, are much less numerous. The White-winged Junco, similar to the Slate-colored, but larger, paler and having two white wing bars, usually flocks by itself and is more likely to be found in the ponderosa pine forest of the foothills than on the plains. Often in company with the Juncos, or flocking alone, we may find the musical

Tree Sparrow from the far north, rather plain brown above and gray below, with reddish crown and eye line, white wing bars and a conspicuous small blackish spot on the breast.

The Song Sparrow, plain, brownish, and streaked below, with a large central breast spot, is fairly common in cattails, more or less singly; it often sings on warm winter days. Occasionally one will find in the same habitat a close relative, the Swamp Sparrow, resembling somewhat the Tree Sparrow, but with a whitish throat and no breast spot or wing bars.

Large flocks of sparrow-sized longspurs are often encountered in winter on the dry, short grass plains, usually in company with the Horned Lark. These finches have exchanged their bright black and rufous markings for winter plumage and resemble plain, brownish sparrows with distinctive white marks on their tails. The Lapland Longspur from the arctic is most numerous. Two others, the Chestnut-collared and McCown's Longspurs, are natives of northeastern Colorado and Wyoming. After nightfall during a heavy snowstorm in early December 1955, Lapland Longspurs were heard passing over all sections of Denver, presumably headed southward, during a period of five hours; it is estimated that no less than 90,000 and perhaps several times that number passed over the city, and no one knows how far the flight may have extended to the east over the plains. Small flocks of another arctic bird, the largely white Snow Bunting, with some brown on the upper parts, occur rarely on the plains during severe winters.

Now that we have covered the winter birds of the plains, let us take a short trip into the mountains west of Denver on a pleasant day in mid-winter for mountain birds, especially those sedentary species which seldom or never venture as low as the plains. Some of the birds we should see might be almost uniformly abundant throughout the forested parts of the mountains, while others are confined by narrower habitat requirements.

In the Transition zone, between elevations of about 6,000 and 8,000 feet (somewhat higher on southern exposures), the predominant cover is ponderosa pine forest, with douglasfir on the cooler north slopes. One bird in particular is almost entirely confined to the pines, the Pigmy Nuthatch, although sometimes it moves over the hill to the douglasfir when the pine seed crop is short. This tiny, short-tailed nuthatch is smaller than even the little Red-breasted; it is grayish, paler below, with gray-brown cap, and usually travels in noisy flocks of twenty to thirty, often in company with other small tree-feeding species. Another bird most common in the ponderosa pine, but frequent higher in the hills and occasional on the plains is the handsome crested

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blue jay of the west, the Steller's Jay, incorrectly called "Rocky Mountain Blue Jay." Dark blue and black, with a long, black crest, it is quite different in appearance from the Blue Jay, but similar in habits. Its variety of calls includes an excellent imitation of the Red-tailed Hawk's scream. Two other species largely partial to this habitat are the White-winged Junco and Cassin's Finch; the latter feeds mostly on the dry fruit of the mountain mahogany (*Cercocarpus montanus*). White-breasted Nuthatch, Common Crow and Black-billed Magpie also are most likely to be found here.

The Red Crossbill, another oddity, brick-red (female green) with crossed mandibles adapted to twisting scales from pine or other cones to obtain the seeds, is often an abundant visitor in the ponderosa pines, when pine seed is plentiful. It may even nest there in mid-winter as it did at Genesee Mountain in 1951-52, when a nest with young was found by the writer and a companion on January 16, the first of several nests. Rarely, flocks of the Red Crossbill are accompanied by a few of the more eastern White-winged Crossbill, pinkish red with white wing bars. The crossbills might also, in some winters, be found only in lodgepole pine, douglasfir, or spruce, or they might be entirely absent from the entire region, depending on the abundance or shortage of seed of those trees.

Going higher, into the lodgepole pine and spruce of the Canadian and Hudsonian life zones, we find species not ordinarily occurring at lower elevations. One is the uncommon Northern Three-toed Woodpecker, much like the Hairy in size and coloring, but its white sides are barred with black and the male's cap is yellow instead of red. This bird is most valuable as a destroyer of the spruce bark beetle, whose recent ravages in the Western Slope spruce are well-known. Here, we should find also the Pine Grosbeak, another stout-beaked reddish finch, with green and gray mate nearly the size of a Robin; it sometimes wanders lower, occasionally even onto the plains. Better known is the Gray Jay (formerly Canada or Rocky Mountain Jay), known to campers and picnickers as the "Camp Robber," quite fearless and frequently met at picnic grounds. Its relative, the light gray Clark's Nutcracker with black and white wings, often confused with the Camp Robber, is more numerous and sometimes invades the plains.

Commonest in the spruce forest, but occasional in lower pine and douglasfir, a Blue Grouse or its brownish mate, a game bird which is much less numerous than formerly in this area, may flush into a near-by tree. Near the upper limit of tree growth, in the Hudsonian zone, a person on snowshoes might be fortunate enough to find a White-tailed Ptarmigan or two, pure white in winter, down from their tundra summer home in search of food; more likely he would find only the bird's peculiar feathered "snowshoe" tracks on the snow.

To complete our list of mountain winter birds, the following species previously discussed as occurring on the plains, might be found regularly at almost any elevation below timberline: Goshawk, Red-tailed Hawk, Golden Eagle, Pygmy Owl (generally prefers open aspen stands), Hairy and Downy Woodpeckers, Common Raven, Mountain Chickadee, Red-breasted Nuthatch, Brown Creeper, Townsend's

Solitaire, Golden-crowned Kinglet, and the Rosy Finches. Robin, Bohemian Waxwing, Evening Grosbeak, and Pine Siskin are numerous during some winters, absent in others. The following are frequent about mountain towns along with many of the small birds listed above: Red-shafted Flicker, Black-capped Chickadee, House Sparrow, and Tree Sparrow. One of the most popular bird attractions for Denver Birders is the large flock of Rosy Finches which comes regularly each winter to two or three feeding stations in Georgetown.

There are a number of publications helpful to anyone interested in the winter birds about Denver. These include the following: "Guide to the Winter Birds of Colorado," by R. G. Beidleman, University of Colorado Museum, Leaflet No. 12, 1955. "The Birds of Denver and Mountain Parks," by R. J. Niedrach and R. B. Rockwell, Denver Museum of Natural History, Popular Series No. 5, 1939.

"A Field Guide to Western Birds," by R. T. Peterson. Houghton Mifflin, 1941.

The Audubon Bird Guides, by R. H. Pough. Doubleday.

Eastern Land Birds, 1946

Water Bird Guide, 1951

Western Bird Guide, 1957

(All three Audubon Guides are necessary for complete coverage as the Western Guide describes and illustrates only those strictly western species not included in the other two.)

It should be noted that the names of birds used here are those of the 1957 revision of the "Check-list of North American Birds" of the American Ornithologists' Union. Many of these will differ from the names used in some of the publications listed above, but most are readily recognizable.



William Frank Willard, former editor of Friends of the Native Landscape, and an active member of the Association, passed away January 10. Upon retirement from teaching in public schools in Chicago, Mr. Willard came to Denver to live with his daughter. Here he continued his interest in native plants by joining our Association and writing articles for us on native ferns and orchids.

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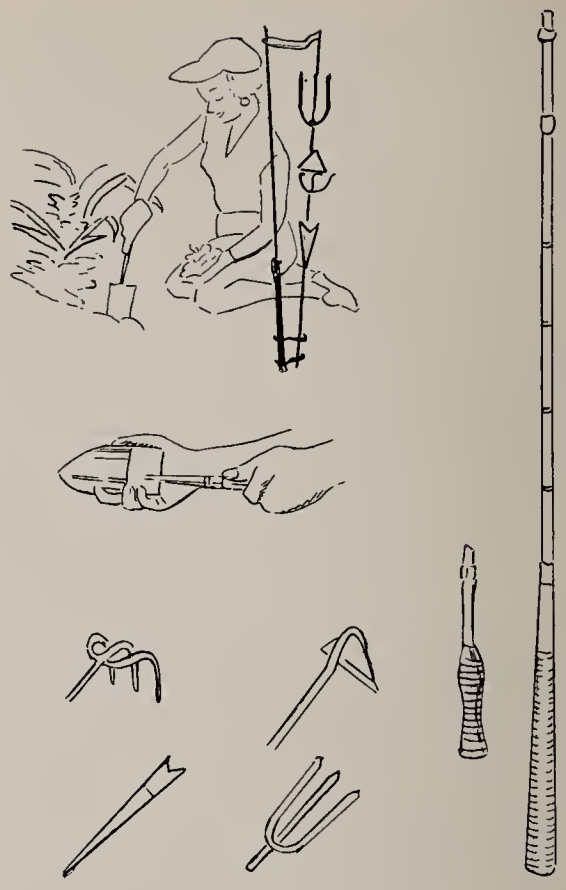
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New roses (new for most of us anyway) are two floribundas, a red one named Fusilier, and, a yellow, appropriately called Gold Cup. A new white hybrid-tea is White Knight.

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MORAS L. SHUBERT

As an ecologist, I am going to stick my neck out now and say that this year will not only be the best year of the past ten years to plant woody species, but that it will probably be the best year for perhaps the next ten years.

An ecologist is supposed to study the inter-relationships between plants and animals and their environment. This means that if his studies and observations are to be of any practical value, he should be able to apply the information gained from studying the pertinent factors in the making of reliable predictions. Perhaps most ecologists have been a little too conservative on this point.

So aside from foolhardiness in attempting to forecast, what are the reasons for my statement in the opening paragraph? First, as any gardener soon learns, both the deciduous and evergreen species of woody plants require a continuous supply of subsoil moisture in order to thrive. As evidence of this, the main difference between our forested and grassland areas of Colorado is in the availability of subsoil moisture.

Right now we have nearly a record supply of subsoil moisture as the result of above-normal precipitation in 1957. This will not only provide an excellent reserve but there is a good chance that during 1958 greater precipitation than the average will be received. This statment is based upon climatological records which show definite cyclical trends in wet and dry periods.

But the reason for saying that 1958 is the year to plant long-lived species and not wait until later, is that we can as surely expect another dry period as we were sure that this wetter one was coming. If we delay too long in our planting of trees and shrubs we will run the risk of planting them at an undesirable time when we are running into the next dry period.

Another factor that must not be overlooked is that people, who live in urban areas or where irrigation water is available, can count on rather plentiful supplies of water during the next few years. It should be remembered that the critical period in getting many wood species established lasts for from one to five or six years, depending upon the kind and how fast the root system develops.

So let's get our orders in now for those choicer species of trees and shrubs. If anyone is in doubt as to what kinds are considered the best, Horticulture House has the information available for all members.

Let's plan and plant wisely in 1958!


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GARDEN CLUB BRIEFS

By MRS. H. D. DUSTON, *Federated Garden Clubs*

The National Council of State Garden Clubs, Inc. is made up of 44 State Federations—approximately 12,000 clubs and 400,000 members. As a non-profit, educational organization, all work and services are on a volunteer basis.

"Our Horticulture Stewardship," the theme of the term of office of the National Council's president, Mrs. Daniel J. Mooney, will be interpreted by each state to fit its needs and capabilities. Possible projects suggested by Mrs. Mooney include encouraging research, testing, courses of instruction, and hybridization.

To encourage the study of horticulture, floriculture, landscape architecture, or conservation, the National Council of State Garden Clubs offers one scholarship annually in each state. For eligibility, requirements, and applications, write or phone the president of the Colorado Federation, Mrs. John Nickels, 133 North Sherman Avenue, Littleton, Colorado.

For the first time in history, a postage stamp honoring the garden clubs has been authorized. The stamp commemorates the centennial of the birth of Liberty Hyde Bailey and goes on sale in the 37,000 post offices of the United States on March 17, 1958. Gardeners will want to buy a large supply on that date.

The Colorado Federation of Garden Clubs begins the new year with 2,827 members in 109 clubs in five districts. There are 30 standing committees and ten special projects chairmen.

Mrs. Emma H. Cyphers of New York, eminent author, lecturer, and flower arranger, taught advanced flower arrangement, and Mrs. Kathryn Kalmbach, recognized Colorado horticulturist, taught growing and judging of specimens in Course IV of the Flower Show School in Denver October 30-31, 1957. Mrs. Cyphers also gave a public demonstration lecture, "The Spirit of Arrangement." Twenty-five students completed the course and took an examination after two days of intensive lectures and study. The dates and instructors for Course V will be announced soon.

Mr. Charles M. Drage of the Colorado State University, Fort Collins is the newly appointed chairman of Landscape Design for the garden clubs. He plans a tour over the state in the early spring to conduct community workshops in the interest of better landscaping.

The "Fun with Flowers" workshops are held once each month in four areas of the city of Denver. One hour lecture-demonstration on flower arrangement, one hour of making arrangements, and a lunch are followed by an exhibit and discussion of the principles employed. To find the workshop nearest you, call the general chairman, Mrs. Martin Rhodes, 855

East Birch, Littleton, Colorado or consult the Calendar of Events on Page 4 of this issue. These shops are open to the public. A small fee is charged.

The conservation policy of the Colorado Federation of Garden Clubs is: "Do not dig, pick, pull or in any way destroy native plants listed, or any plant if rare where found." There follows a list of some twenty-five natives in danger of being exterminated. It is also the policy of the Federation not to permit the use, in competition, of any native plant material listed, but to educate by exhibits of labeled specimens in water, potted plants, dried specimens, or pictures. This list of plants not to be destroyed, picked, pulled or dug is in the December 1955 issue of The Green Thumb.

CONGRATULATIONS to the Civic Garden Club of Denver for winning one of the special awards in the Garden Club Yearbook Contest sponsored by Horticulture Magazine. To quote from the magazine "all the clubs selected for recognition rated high on all counts in the scale of points. Their yearbooks were in good taste and neatly (even though sometimes inexpensively) prepared. The interest in gardening was sincere, and the programs were varied and highly appealing."

New 1958 Officers for the Rocky Mountain Association of Landscape Architects are:

President—Sam Huddleston

Vice Presidents—S. R. DeBoer and M. Walter Pesman

Secretary-Treasurer—Frank Kirsch.

MEETING OF THE MIDWESTERN CHAPTER OF THE NATIONAL SHADE TREE CONFERENCE TO BE HELD IN CHICAGO

The 13th annual meeting of the Midwestern Chapter of the National Shade Tree Conference will be held February 19, 20, 21, 1958, at the LaSalle Hotel, Chicago, Illinois. The program is primarily directed to discussion of shrub and shade tree problems of concern to those who live and work in the midwest, but included also are topics of interest to home owners and arborists in all sections of the country. Following presentation of each paper, a short period will be devoted to questions and answers. Additional opportunity for general discussion will be provided in the Plant Clinic session Friday morning. Various tools and supplies used in arboricultural work will be on display throughout the convention, with representatives to explain their uses.

The meeting is open to all who wish to attend. Registration will start at 8:30 a.m. Wednesday, February 19, and the first paper on the educational program will be presented at 11:00 a.m. An attendance of approximately 350 members and guests is expected.

"How to have Good Gardens in the Sunshine States" will be available at book stores and Horticulture House in March. What you may save from the mistakes that it will help you to avoid will pay for it many times over.



BOTANIC GARDENS IN JEOPARDY

By ROBERT L. WOERNER, *Director*

As a member of the American Association of Botanic Gardens and Arboretums for the past six years, I have been ever aware of the threats that can arise to cripple or destroy botanic gardens. Several well known arboretums have been threatened by highway construction or relocation. Others have felt the pressure of groups demanding space for other activities. The Arnold Arboretum has been the center of a controversy caused by changes in operation.

Of all the problems facing botanic gardens, the most common is that of a lack of sustained financing. Our new botanic gardens in Denver are already faced with that problem after their second year of operation on a city budget. Our lusty young "infant," which has shown some signs of impending vigorous growth, has been suddenly brought to near starvation by a 32% reduction in the city budget which has been attributed to the failure of the recent income tax proposal. It may be good fortune that such a situation has arisen while the botanic gardens are small in terms of development. It makes us mindful of the fact that city funds allocated to us may be curtailed whenever the budget is slim.

As director, I feel that our problem should be the concern of each and every member of the Colorado Forestry and Horticulture Association, since this organization provided the initial funds to get the botanic gardens under way and through The Green Thumb has generously provided space for our releases. If Denver is to continue to have botanic gardens, we *must* have increased public support and assured income, for plant and tree collections that have taken years to assemble and grow to maturity can be quickly lost through neglect, particularly in our climate where artificial conditions must be maintained to grow most plants.

We must remember that the botanic gardens will not be luxury show gardens nor "icing for the cake." They are fundamentally educational units which will greatly benefit the people of Denver. Our city is noted for its fine homes and attractive lawns. Each homeowner can profit from the proposed programs in gardening, plant testing, and plant introduction. Research in the culture of plants in this area can save thousands of dollars for gardeners. Assistance to landscape architects, landscape contractors, and nurserymen will be a great help to the local economy.

Certainly a city of 500,000 people can determine for itself the value of a botanic garden and provide it with sustained support, so that the future of plantings (all of which

have been donated to date) can be guaranteed. A restricted endowment is the best answer to this problem. The city has named the Botanical Gardens Foundation as its agent to establish botanic gardens in Denver and it has agreed to set aside funds for the development of these gardens. Yet such funds are subject to cuts and no permanence is assured. With endowment income to augment city financing, the work of the botanic gardens will be accelerated. Research and educational projects can be started with complete confidence that the work can be carried on although it may extend past a budget year.

A restricted endowment for the botanic gardens will build itself, for each gift will gain the protection of the entire endowment. The present site of the botanic gardens cannot be considered attractive to donors of either plant materials or construction funds, for the entire operation is presently dependent upon tax money. The budget office was recently quoted as saying that the botanic gardens would be operated on a standby basis under the supervision of the park department. Under these conditions our plant studies could not be continued which would mean a halt to three years work. The collections would become merely another group of plants in a park.

Fortunately, this situation has been modified through the efforts of the Foundation. But the botanic gardens are still in a precarious position with only a very limited budget which can only lead to the question: "What will be the answer when the costs of operating Denver are further increased by its rapid growth and income again falls behind?"

CONGRATULATIONS

Congratulations to Miss Irene Susan Scott of Englewood, and Miss Jean P. Bethke of LaPorte, for their most recent achievements. These two young ladies were awarded trips to the National 4-H Congress in Chicago and while there, they were named national champions in home beautification and gardening respectively.

Chuck Drage, extension horticulturist, Colorado State University reports that their names will be added to the long list of previous national champions in horticultural projects. In the last 13 years Colorado 4-H members have brought to Colorado seven national home beautification championships and 10 national gardening championships.

Kathy Grein of Brighton, the national 4-H garden champion in 1956, won the regional championship in 1957 in the National Junior Vegetable Growers Association production and marketing program.



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PLAYING WITH GIBBERELLIC ACID?

The August number of The Green Thumb gave some interesting facts about *gibberellic acid,* a product derived from a fungus that has been known to affect the growth of rice in Japan.

The Rockefeller Institute for Medical Research tells about some results, found by Karl Maramorosch, of its effect on plants stunted by certain viruses.

Science (October 4, 1957) reports that China asters, infected by the aster yellow virus from a leaf hopper, were treated with gibberellic acid, which caused them to resume remarkable growth, even though the virus was not eliminated.

In his earlier work Maramorosch showed that this virus can continue to grow both in the leaf hopper and in the diseased plant. Killing the leaf hopper, before it can introduce the virus, is effective, of course; afterwards the case is almost hopeless.

Now we'll see what gibberellic acid might do to restore the infected plant. Stunting is being overcome, but how about the other symptoms—distorted, greenish flowers, and such.

Scientific research is slow, but sometimes we may get unexpected results—all of a sudden. It behooves the gardener to keep up to date on these new developments and that is why we report these developments to readers of The Green Thumb, even if final results are not yet visible.

Here and there we hear of gardeners, full of "insatiable curiosity", dabbling with colchicine, gibberellic acid, and plant hormones. All of a sudden they may tumble upon some important findings.—MWP.

There are 50 or more species of vetch (*Astragalus*) growing wild in the Rocky Mountains and on the plains which, when cultivated, prove to be of equal value to some of the best vetches cultivated in Northern Europe.

A scientific analysis has demonstrated the fact that one ton of small buffalo grass (*Buchloe dactyloides*) is equal in nutritive value to three tons of the best Eastern Timothy hay; that one ton of low Grama grass (*Bouteloua hirsuta*) is equal to two and one half tons of cultivated Timothy; that a meadow grass (*Poa tenuifolia*) is equal in value to twice its weight in eastern meadow hay.

Noted in William Barker's column in The Denver Post:

SMALL TALK—Melanie Brown, that lovely thing, works as ass't editor of "The Green Thumb" horticultural magazine, then goes home and fiddles with exotic herbs, flower petals and such fragrant things. Selects them and blends them and puts them in pots. Pots then are given to friends. The fragrant potpourri causes the friends and their dwellings to smell good.

Seasonal Suggestions

January-February is a time for dreaming. Perhaps a winter garden in Florida would be nice; a prize rose at the show; a weedless lawn; a lawn that needs no mowing; a flower bed that faintly resembles catalog illustrations; an automatic sprinkling system; a season without insects? Pleasant dreams all of these, and ones that are not completely out of the realm of possibility.

Research and modern science bring us a step closer to this garden Utopia every year. However, with growing things, even science needs a helping hand. If you want to make these dreams come true, now is the time to start; use winter months for planning. Sit down with a pencil and paper and start listing the problems you had in your garden, the changes you would like to make in your landscape. Now go through this list carefully. You'll find that experience has taught you some of the answers, but more than likely you'll find that you need help on the majority of them. This quiet time of the year is the time to get this assistance. Your local nurseryman or seedsman is an expert in his field and will be glad to advise you now before his spring rush begins. Horticulture House is always open to you too; just call or drop in any time.

If you have time to read you can do much to help yourself. We have, here at Horticulture House, a very fine library with good current books on practically any phase of gardening. We also have a periodical rack that contains most of the current garden magazines of the country. All this information is available, but the fact remains that it can't escape the covers of the books unless a willing hand opens them and an interested mind assimilates the knowledge. Don't procrastinate. Heed these suggestions, put them into action, and make your gardening dreams come true.

The above are the main things to stress, but there are a few other minor items that should be mentioned. Most of you will undoubtedly receive one or two seed catalogs in the mail, and if your name happens to be on a national mailing list you may receive several dozen of them. It's great to thumb through these profusely illustrated books. Many flowers would blush if they could see their touched up portraits. In this, a word of caution in case you want to make a purchase from these magic brochures. Remember, "Rocky Mountain horticulture is different." Check the items for price, desirability and hardiness in the high plains area. Also, beware of super colossal bargains. Good quality plants do not lend themselves to bargain prices. Play it safe. Patronize local garden centers, nurseries, and seed stores.

A reminder to those of you who have backyard vineyards: January and February are the months to prune grapes. If you are unfamiliar with the various grape pruning methods, consult your February 1956 issue of The Green Thumb. In that issue Martin Keul, the area's authority on grapes, explains their culture in detail. If you do not have that particular

issue of The Green Thumb, call us or drop us a card and we will gladly send you a reprint of the article.

Those of you who have large trees, especially elms, should contact your arborist for dormant spraying. This is your best protection against elm scale. It can be applied any day when the temperature is above 40°. With our erratic spring weather, the arborist has to crowd a lot of spraying into a very few days. To do the job efficiently and economically, he tries to route his jobs. Having your name and order now will help him and insure the spraying of your trees when conditions are right.

You might take a peek at your stored bulbs now and adjust storage conditions if there is any evidence of mold or shriveling.

This is the only time of the year that you can size up your garden for winter appearance. Do your shrubs and trees present pleasing and interesting shapes? Do they have color or unusual attraction? Leading landscape architects agree that winter interest is really the test of a well designed garden. If it fails in this respect, take a drive around your community some sunny day and make notes on the trees and shrubs that catch your eye. With little effort you can develop a good winter garden.

Hunting, fishing, and picnicking are a bit out of season, but Colorado's growing winter sports areas are going full blast. Even if you're a foreigner to skis, a Sunday drive into the mountains will reward you with sheer winter beauty.—PAT.

STATE SOIL CONSERVATION DISTRICT MEETING SET

Plans were completed this week for the thirteenth annual meeting of the Colorado Association of Soil Conservation Districts to be held in Denver, January 27, 28, and 29, 1958. The Shirley-Savoy Hotel will be the site of the business sessions, committee meetings and banquet. Warren E. Daly, Montrose farmer, president of the association, announced a full slate of activities for the three day meeting.

Following a welcome by state and city officials Monday morning, discussions of the weed control and watershed conservation association work will be led by Charles H. Boustead, CF&I official. Committee meetings will consume the remainder of the day's program.

Tuesday morning, the business sessions will open with a discussion of administration problems of the state water code and the newly enacted underground water code led by J. E. Whitten, State Engineer and J. H. Cukyendall, Keenesburg farmer.

Principals at the Tuesday evening banquet will be Walter P. Cooper, prominent Fort Collins lecturer, and Bill Richards, Orleans, Nebraska, rancher, national vice-president of the Soil Conservation District Association.

Plans call for a ladies tour of the city on Wednesday and Thursday. Stops are scheduled at the KRMA Educational TV studios, the Public Service Company of Colorado and the United Airlines Operation Center.

Business sessions will close on Wednesday following an official luncheon at which the Goodyear Tire Company will present its National Conservation Contest Award to one of Colorado's 98 Soil Conservation Districts.

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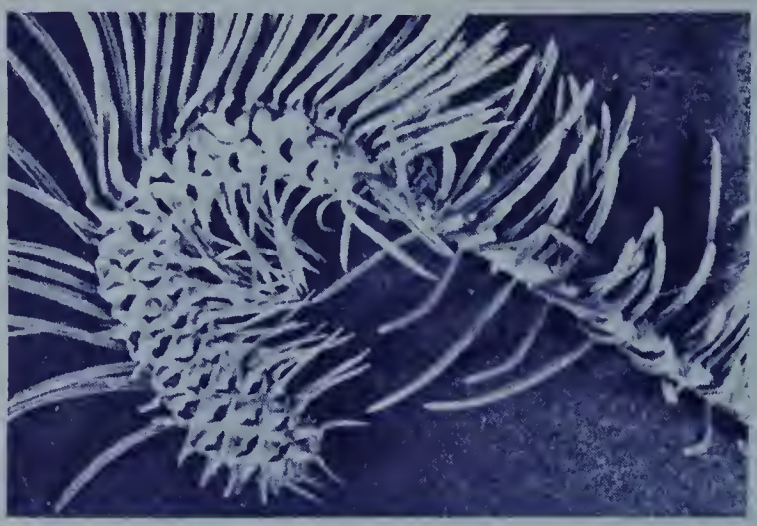
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The Green Thumb

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The Green Thumb

Vol. 15 MARCH, 1958 No. 2

Colorado Forestry and Horticulture Association

Orgonized in 1884

"To preserve the notural beauty of Colorado; to protect the forests; to encourage proper maintenonce ond additionol planting of trees, shrubs ond gordens; to moke ovoiloble correct informotion regording forestry, horticulturol proctices and plants best suited to the climote; and to coordinate the knowledge and experience of foresters, horticulturists ond gardeners for their mutual benefit."

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Editor *Patrick J. Gallavan*

GREEN THUMB WRITER'S CONTEST

The Green Thumb offers a first prize of $25 for the best story on "How I Landscaped My Backyard." Second and third prizes will be $10 and $5 respectively. This contest is open to all members of the Colorado Forestry and Horticulture Association except to those on the Editorial Board. Stories should be 800 to 1000 words in length and may or may not be accompanied by illustrations. Illustrations should be glossy photographs, or drawings. This contest closes the first of April, 1958. Entries will be judged on their originality and the ingenuity of the author, and will not be returned unless specified and accompanied by return postage. The best stories will be published in The Green Thumb at a future date. Send stories to The Green Thumb, 1355 Bannock Street, Denver 4, Colorado.

Someone left some pink knitted gloves at Mrs. Schoo's house, 2650 Dexter, during her plant auction. Is anybody missing some?

PATRICK J. GALLAVAN *Editor* MRS. HELEN FOWLER *Librorian*

MELANIE BROWN, *Asst. Editor and Librarian*

MR. AND MRS. EDWARD J. VINCENT, *Custodians*

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MEMO

Calendar of Events

"Fun with Flowers" — A lecture and demonstration is followed by the making of arrangements. Each person brings containers, mechanics, and material. The workshops are open to everyone. Due to popular demand the workshops will be held each month at the following times and places:

Workshop No. 1 — 1422 Kenton, Aurora, Second Thursday, 9:30 a.m. Chairman: Mrs. Fred Harper, 270 Jersey, Denver.

Workshop No. 2 — Lakeside Denver Dry Goods, 44th & Harlan, Denver, First Tuesday, 10:00 a.m. Chairman: Mrs. C. C. Buckbee, 4190 Depew, Denver.

Workshop No. 3 — Englewood State Bank, 180 East Hampden, Englewood, Second Wednesday, 10:00 a.m. Chairman: Mrs. H. E. Cluphf, 3888 South Grant, Englewood.

Workshop No. 4 — Arapahoe County Fair Grounds, W. Belleview & Windemere, Littleton. Third Tuesday, 10:00 a.m. Chairman: Mrs. John Sobilla, 386 North Windemere.

March 5—Botany Club meets the first Wednesday of each month, 7:30 p.m. Horticulture House, 1355 Bannock.

March 10—Spring Garden Series, May Company, University Hills Shopping Center, at 7:45 p.m.,

with Herb Gundell, Pat Gallavan, Bob Woerner.

March 11—Spring Garden Series—Doull School, 2520 South Utica, at 7:30 p.m., with Herb Gundell, Pat Gallavan, Bob Woerner.

March 12 — Organic Garden Club meets the second Wednesday of each month, 8:00 p.m. Horticulture House.

March 13—Spring Garden Series—Ellis School, 1651 South Dahlia, at 7:30 p.m., with Herb Gundell, Pat Gallavan, Bob Woerner. Also same series Thursday afternoon at Sears & Roebuck, Cherry Creek Shopping Center from 2-4 p.m.

March 13 — Denver Rose Society meets second Thursday of each month, Room 186, City & County Bldg. at 7:30 p.m. Herb Gundell, speaker.

March 14 — Organic Garden Club and Nutrition Club will hold a meeting at 8:00 p.m. at West High. Lady Eve Balfour will speak on "The Living Soil." There will also be a twenty-three minute color film. Tickets are $1.00. The public is invited.

March 17—St. Patrick's Day!

March 24 — African Violet Club meets the 4th Monday every other month at Horticulture House at 8:00 p.m.

Green Thumb Program — 8:50 a.m. each Saturday KLZ, 560 on your radio dial. Pat Gallavan, Horticulturist.



GEORGE KELLY'S NEW BOOK,

"How to Have Good Gardens in the Sunshine States" is now available at all good bookstores, Garden Shops and at Horticulture House.

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Arrangement of the Month

Arrangement of the Month

The rich browns of dried magnolia leaves are a perfect foil for these salmon-pink dahlias. Height was gained by placing brown dock and tulip seed pods at the back of the arrangement. Dahlias were dried in borax. One should always dry a few buds along with the flowers. Florist sticks and wires were used in tying and lengthening the stems of the flowers and leaves. The container was filled with sand, an easy, convenient way to hold dried material in place and keep arrangements from toppling over. This was a first award winner in a dried flower show of Home Garden Club. Arrangement by MRS. J. P. STEELE, JR.

Photo by Ray Turnure

WATCH FOR

News concerning the Garden Fair and Show coming May 16, 17, 18 at the Denver University Field House. Committees are being formed now to help with it—won't you join us? Everyone's cooperation will be needed if we are to make this a bigger and better fair. We need carpenters, ticket salesmen, volunteers for booths, gardeners, and plants and cuttings. Keep the above dates open and call Horticulture House, TAbor 5-3410 or Mrs. Ed Honnen, chairman of the Fair, at PLaza 5-0401, if you wish to volunteer your services.



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Fig. 1. Patio under construction. View from parking approach.

A BRICK-IN-SAND PATIO

By EDMUND WALLACE,
Rocky Mountain Association of Landscape Architects

If you're looking for patio material that you can lay in an afternoon and that will make a slick, durable surface for dancing and children's games, read no further. But, if you want a pleasing surface that will add warm color to your garden summer and winter, I suggest brick.

Most home owners in Colorado, sometime or other, have tried flagstone. For durability, it's tops; indeed, if properly constructed, it can last forever. Its irregular shape and sculptured surface also add pattern and texture to the garden floor. I'm really proud of my efforts at laying flagstone, and I'd be the last one to deprive anyone of the experience, but if I knew then what I know now, I'd have built my first patio of brick. Unless the homeowner happens to own a quarry, he is likely to pay more per square foot for a flagstone patio than for any other material he could have chosen—as much as five to ten times the cost of owner-laid brick. It takes about four and one half bricks per square foot of patio. At 4½ cents each, this costs about 20 cents; less if used brick can be obtained. Of the two classes of brick favored for garden surfacing, rough-textured common brick is used more than slick-surfaced face brick. Common brick is obtainable in wire-cut, sand-mold, or clinker brick depending upon the desired result. Try to buy common brick that is hard-burned for it will outlast "green" brick. Buy enough of the variety you need to see you through the job.

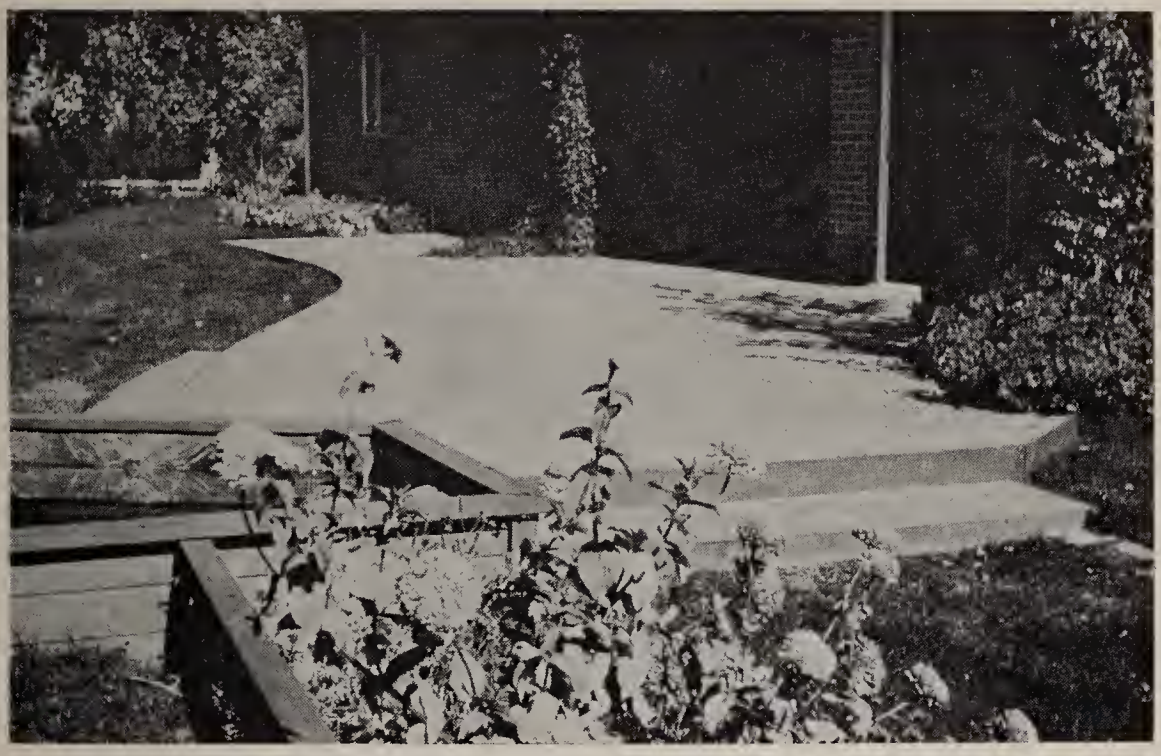


Fig. 2. Same view as Fig. 1, completed.

Bricks are easily set in place. In fact, brick - in - sand pavement is probably the simplest of any garden paving to install. It's difficult to make serious mistakes and renovation involves only your own labor. The secret of getting the job done, and enjoying the process, is to take it on in manageable sections and not to attempt too much at one time.

A brick patio, like any other, must be scaled to the outdoors with room for furniture and outside living. It should be oriented to invite the winter sun, yet be screened from the late afternoon summer rays. It must be properly related to the house or fitted into the garden and made livable with the dappled shade, softening texture, color accents, and fragrance of trees and shrubs. Rectangular patios are best for most brick patterns. Curved or angular sides require tedious cutting. Mine is curved on the long side with five angles to add interest and provide for a redwood planter (I'm the adventuresome type). At the request of my illustrious family, the planter turned out to be a pool, and to my surprise, quite successfully (see fig. 5). This was made possible by lining the planter with plastic film which is now obtainable in sizes up to 100x200 feet at a cost of about 3 cents a square foot.

Our brick patio was born when an attached garage was converted into a music room. The six inch concrete driveway, built for permanency, finally surrendered under the insistence of an air hammer. The broken concrete made an excellent base in the deep fill areas of the patio. The living area of the new room is now extended visually through sliding glass doors onto the colorful brick patio that has been laid flush with the music room floor with only a low sill to separate the areas and keep out the driving rains.

Laying bricks in sand is a simple job, but the finishing touches call for

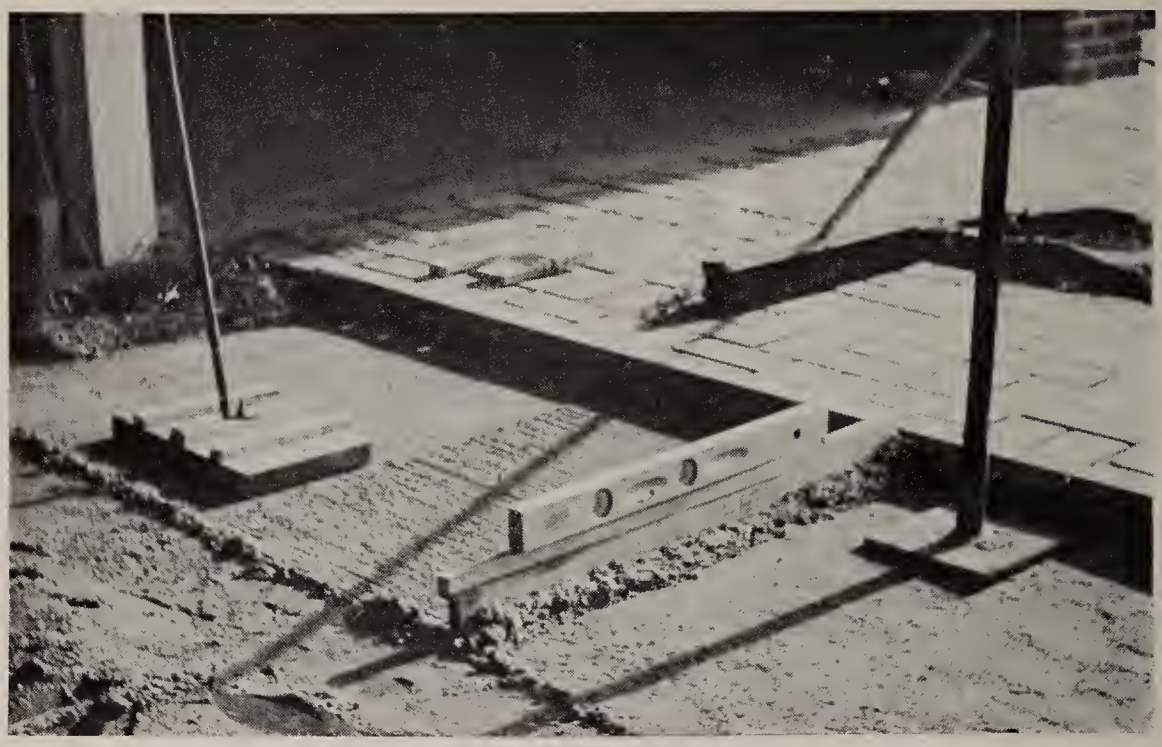


Fig. 3. Construction detail, showing redwood header, screed and level, and tamps used to compact sand.

careful workmanship. Grading is most important. If excavation is necessary, cut away only enough to accommodate 3 inches of sand plus bricks 2 inches thick. Too deep an excavation is difficult to fill and compact to its original conditions. If fill is necessary, use a good base material below the 3 inch sand pad, applied in thin lifts, wetted down, and thoroughly compacted with a tamper. Aside from preparing a level bed, compaction is the most important phase of the job. With the best of care, bricks in sand will settle some and it is well to give them some clearance.

This type of paving requires a firm, tight edge for stability and appearance. If the sand is not contained, it sifts away letting the bricks settle. This should be put in place as soon as you have discovered what size will require the least cutting of brick. Lay a sample section when you have chosen your pattern and set your edge accordingly. This retainer can be brick laid up in mortar, a strip of concrete, or wooden headers 2x4 or 2x6 inches held in place by stakes. I used redwood, setting them in place early in the game as they make the best guides for leveling up the rest of the job (See fig. 1). When the patio joins the house, it is well to set these outer edges so that the paving drains away from the foundation with a slope of about ⅛ inch per foot.

My first few rows of brick were

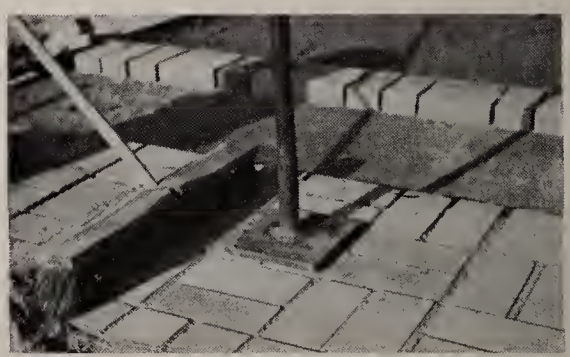


Fig. 4. Sand swept into joints is given final tamping. Sample ribbon of bricks is in the background.

laid accurately to a string stretched from the required level at the house to the top of the redwood header. Screeding (leveling) for this was done by using a notched board with a 2x4 inch as a guide. After these first few rows were in place, they were used as a screed guide for the next section, and so on across the entire patio. If this is done, it is well to lay a thin, smooth board over the brick to correct their unevenness. The screed is kept level with a carpenters level laid along top edge (see fig. 3). Cut a notch in the end of the screed so that the sand is leveled to a depth a little less than the thickness of the brick. This will allow for tamping after bricks are in place. In screeding, dry sand works best, but before laying brick, wet and tamp (see fig. 3). If tamping lowers the grade, add more sand and screed again, continuing this process until there is no more settling. This will seem arduous at times but the rest is easy, and it will prevent settling later on. When surface is ready for bricks, don't step on it without first laying down boards.

In laying, bricks may be butted snugly together or they can be placed ½ inches apart and the space filled with sand. In the first method, the tightly wedged bricks hold each other in place. However, dimentional variations common to clay brick make some patterns difficult to realize. When space is left open between bricks, the variations can be taken up in the joint. In the basket-weave pattern I used, a joint was necessary to make the ends of two bricks running in one direction equal the length of one brick running in the other (see fig. 4). When laid solid, a ½ inch hole turns up in the center of each block of eight bricks. You can invent your own pattern, but it shouldn't be so "busy" that you will tire of it.

Start your brick from one side of the patio, and lay a ribbon of your



Fig. 5. Completed patio showing the relaxing pattern of the bricks and the pool.

pattern all the way across the area (fig. 4). As you near the edge, tighten or loosen the joints as necessary so that you end up with whole bricks whenever possible. This should work out very well if your edge has been calculated as described earlier. With a running bond or basket-weave pattern, straight lines are important. Laying a straight board along the last row and setting the new row to it will prevent wavy lines. Nails set in, or notches cut into, the board at two or four brick intervals will make for straight rows in the other direction.

After bricks are in place, shovel sand onto the surface, then sweep it into cracks. This should be done as the work progresses, especially if bricks are laid with a joint, otherwise walking on completed areas during construction will twist them out of alignment. It will be necessary to add sand occasionally until sand joints cease to settle during a rain.

When sand has been swept into joints to prevent bricks from moving, go over entire surface with an iron tamp or place a 2x6 across several bricks and pound with a maul (see fig. 4).

Some weeds will inevitably find their way into the sand joints. A good soil sterilant poured between the bricks will control this.

When you have done all this, you will be as proud of your brick work as I have been. However, let no man persuade you that a brick patio can be laid in a day. If you lay a 3000 brick patio in a couple of days, you may never want to see a brick again. Taken in small doses, it is a satisfying experience.



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THE BEST USE OF YOUR SPRINKLER SYSTEM



By HERBERT C. GUNDELL, *Denver County Agricultural Agent*

Just as the mechanical power mower is rapidly replacing the old 16 inch, 6 blade hand-mower, so the sprinkler system is rapidly gaining in importance in this day and age of mechanization and automation. And some automation in garden work makes good sense. Especially, when it allows the family to devote more time to outdoor family living and play, automation of certain necessary garden maintenance work is highly commendable. However, let me warn you that there are limitations beyond which I would consider the value of mechanical garden work highly debatable.

After all, gardening to many of us is an enjoyable relaxation and a free time activity in which we find helpful exercise and a close contact with "Mother Nature." Certainly, to young and old, gardening should be preserved as an activity that has excellent health building, therapeutic values. After all, as we use our muscles less and less each year, we must find more of these health-building exercises lest our extremities shrivel up some day and fall off because of utter non-use!

A sprinkler system has, in many instances, a sound justification for its use. More and more home sites are on larger lots and the job of watering all this vegetation by hand-operated irrigation sprinklers is, at best, a time consuming activity. Look at our Denver Parks System. There, where economy in time and money is an utter necessity, the expenditure of money for the installation of automatic sprinkler systems in many areas has proven a sound savings device over the long haul. Certainly by the use of sprinkler systems, some element of human error can also be minimized or totally eliminated.

A mechanical sprinkler system to be effective in performing its task must, of course, be properly designed in the beginning to yield the necessary coverage, to adapt to high and low pressures and to be mechanically sound from a standpoint of wind direction and velocity. Those factors should never be underestimated in the design of the sprinkler system. It pays in many instances to engage the services of a trained and qualified engineering consultant to either design the sprinkler system itself or at least go over the plans of a contractor from a standpoint of coverage, pressure, and other water delivery criteria. It is certainly also most advisable to have a system installed properly by commercial organizations whose experience and warranties are acceptable and valid. Should you wish to install your own system, then the importance of technical consulta-

tion becomes even more important because factors of elevation, slope, and coverage are often underestimated by the home gardener. Don't forget that it is much easier to install a system properly, than it is to rip it out and re-do sections which do not meet the specific needs of the area in which they have been located.

The use of timing devices on a sprinkler system is highly debatable. As you will discover later on in this article, I consider them of little benefit, if any at all. There is, however, one feature which sprinkler systems should be designed to include, and that is a fertilizer tank. By that I mean a device which meters liquid fertilizer concentrates into the irrigation water while the system is in operation. Many commercial fertilizers are completely water soluble and there really is no just reason why these fertilizers could not be applied directly to the lawn through the system. It is important, of course, that the system be flushed properly with clear water after the fertilizer has been used in order to eliminate the danger of damage to the system by corrosion or oxidation.

Now what could be considered the proper use of a sprinkler system? In my opinion, a sprinkler system should still be employed in the same basic manner in which the home gardener properly irrigates his lawn. That is, with the intent of applying sufficient water at one time to satisfy the needs of the lawn for 5 to 7 days. The validity of this type of a program is obvious. By infrequent, thorough applications of water, the areas in the soil where roots more favorably locate are satisfied with sufficient moisture each time and the reservoir of water is replenished. Light surface applications of large amounts of water in short periods of time at alternate day intervals are not recommended because they are a great boon to weed culture and certainly will not yield the type of turf that the home gardener would most desire.

One of the important things is to be sure that your system is laid out on circuits so that only one or two circuits are operated at one time. This will make best use of the pressure of your irrigation system. After due consideration of the slope and delivery potential of your system, soil texture must also be considered as a factor. Certainly sandy soils will take moisture more readily than soils of a heavy, clay type.

I would consider it indeed a practical thing to set out coffee cans and to clock the length of time required for the delivery of one inch of water out of each circuit in the system. This information is of invaluable help. The next thing the home gardener needs to find out is how long each circuit can be operated before water will start to run off. In other words, let us assume it takes 30 minutes to deliver one inch of irrigation water out of a circuit in your sprinkler system. Let us

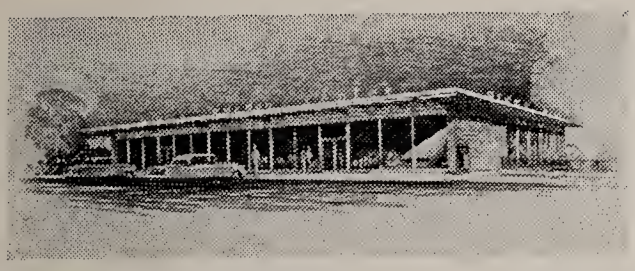
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assume also that it takes only 10 minutes before the water starts running off. Then the proper use of our system would be as follows: use the system for 10 minutes, turn the circuit off and turn on a different circuit and operate it as long as reasonably possible; then return to the first circuit that has had 10 minutes of watering time—perhaps a half hour before—and apply another 10 minutes at which time ⅔ of the need would have been taken care of. Then wait another 30 to 45 minutes and apply the third 10-minute application, thereby completing the irrigation requirements for this one area covered by the circuit for a period of from 5 to 8 days, depending on soil conditions, exposure, slope, and other external factors. While this type of operation is not what people generally have in mind when they install a sprinkler system, I feel that this more nearly satisfies the requirements of a turf area than the other use of spacing 10-minute applications on alternate days. Perhaps this is too complicated for some people, but if a logged system for each home gardener can be worked out, it could simplify itself to where the actual time use of the system would be no longer than if the system had been used in the other, perhaps more popular, way.

At any rate, if you want the best results, use your sprinkler system in such a way that it will benefit the lawn in the greatest possible measure.



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BEDDING PLANTS AND THEIR CULTURE

By MICHAEL ULASKI

For Color and Economy Grow Your Own Annuals from Seed

The time is near to be thinking about gardens and what to plant, so with this in mind, growing your own from seed is not only economical but fun. Decide what plants you want to grow and then fit them to your particular situation.

Soil

In growing any type of plant, the first thought should be of the soil and its characteristics; what it is composed of, and its nutritive content.

Set rules cannot be made regarding soil mixtures because of the many different types of soil which range from heavy clay to those that are rather sandy. But as a starting point, analyze your soil, or more properly, have it tested. If this cannot be done, then try to find earth that contains enough organic matter to insure adequate moisture retention and contains enough sand to provide good drainage and aeration.

Soil Mixture Ingredients

The principal ingredients in most of the soil we use for starting our seed in the city greenhouses are a good loamy sand, peat moss, or leaf mould. The best kind of sand is one that is clean and sharp. A domestic peat moss is less expensive to use in soil mixtures. Avoid manures or fertilizers in seed-starting mediums. A good starting mixture is two parts of good soil, one part sand, and one part peat moss, or leaf mould that has been properly aged. These should be mixed thoroughly.

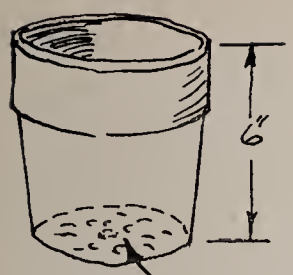
Seeds

The most essential thing in growing good bedding plants is good seed and the surest way to get the best is to place your order early each year. Seeds should be stored in a cool dry place in air-tight containers until planting time.

Fine seeds are best spread in rows with a planter (Vibraseeder), or carefully sifted from the package; even distribution is essential. Do not cover tiny ones such as petunias, begonias, torenias, etc., and avoid over-crowding which can cause dampening off later. Dampening off is a disease which rots plants at ground level. Over-crowding and over-watering create conditions favorable for the disease.

Flats or Pans

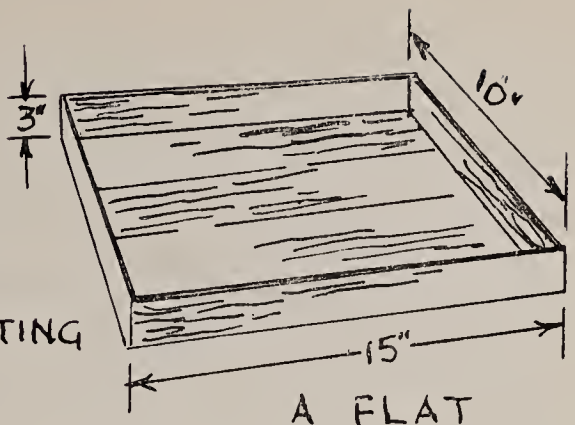
One of the better methods is to fill a flat or pan with soil to within ½ inch of the top. If you do not have a seed flat, an azalea pot is a good substitute. This sort of pot, or pan, as some call it, is quite shallow and more suited to raising seed than an ordinary flower pot. Water thoroughly and then finish filling the flat with light soil that has been put through a ¼ inch sieve. The soil should be pressed down lightly with a board that fits the flat or pan to insure evenness of soil surface. When all this is complete, sow your seed. Again I say, do not cover very fine seed. For seeds that are a little larger and need some covering, use sand or part sand and part soil—half and half—and sprinkle it on with a fine sieve or some kind of shaker to just the depth of the seed.



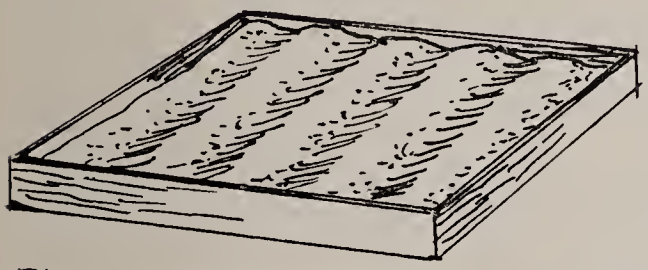
AZALEA PAN



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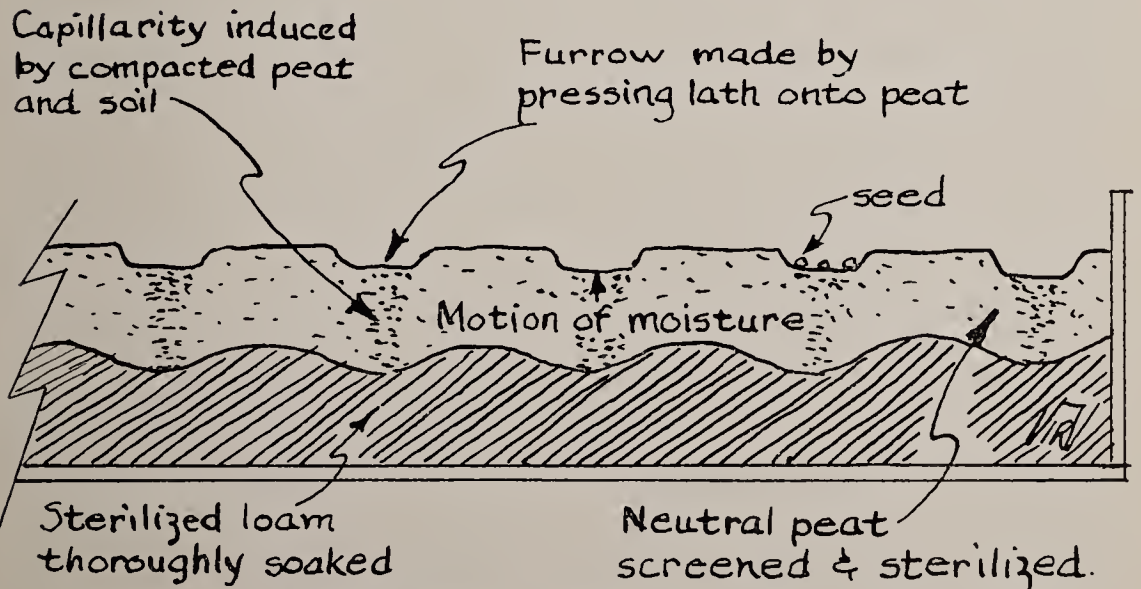
A FLAT



Flat with furrows



Flat after plants have come up.



SECTION THROUGH PART OF END OF FLAT

Watering

If the soil of seed flats or pans remains moist enough to carry the seeds through the germination period without having to water them, this is ideal. However, never allow the seed flats to become dry. It is better to sprinkle them with a fine spray, lightly and often, rather than infrequently and too heavily. After the seeds have germinated and are growing, don't water them too late in the day. This is to prevent the plants from going through the night wet and thereby inducing dampening off.

Temperatures

There is a wide variation of temperatures at which various seeds best germinate. It is usually necessary to strike a happy medium for optimum results. A good bottom heat of about 65 to 70 degrees at night and a daytime temperature of 75 to 80 degrees should be used.

Prevent Drying Out

If the days become overly bright or warm, it is best to shade your seed flats or pans with a newspaper. Papers are suggested because they can be removed as the weather and temperature vary. Proper shading also cuts down on the watering. When the seedlings reach the stage where newspapers can be removed altogether, then place the young plants in a slightly cooler place and watch the air and light. These procedures all help protect the plants from dampening off. If plants are too thickly sown and come up that way, thin them out. If you have room, plant the extra seedlings in other pots or flats, so many to a container, for good bushy plants.

Most seed germinates in about 10 days so this determines when to sow it. Space, of course, is a primary factor in how much you can raise. If you are fortunate in having a cold frame or a small greenhouse, you should be able to sow all you want. In this case, start your seed in March for stout plants by the end of May.

Many plants start easily from seed. Petunias, the most commonly used of the annuals, make a nice showing. Grandifloras, with large blooms up to 4 inches across, are beautiful. Then come multifloras with smaller flowers, the size of a dollar, but they literally cover the plants with bloom. Coleus from seed, Rainbow mixture, is something to be tried for partly shaded areas.

Then there are many kinds of dahlias that can be raised from seed. These are a little taller—30 inches—perfect for a background. Gloriosa daisy—3 feet high—is a new flower the size of a saucer, with yellow petals and a black center. It, too, makes a showy background.

Salvia is excellent for its splashy scarlet red flowers. Some new varieties are Pink Sundae, Rose Flame, White Fir, and Royal Blue (30 inches and especially good with pink petunias). Dwarf phlox is interesting. The attractive new one, Twinkles, should be in every garden.

Verbenas, in many colors, do particularly well in warm places and bloom steadily. Snapdragons are always reliable and usually come up again the second year. Available in many colors, they make good cut flowers. Common Perilla (*Perilla frutescans*) is seldom used. This is an old timer. Years ago it took the place of coleus to which it is similar, but in color different, having a bronze-green foliage. Treat it as you would coleus. It grows readily from seed.

Sweet alyssum (Carpet of Snow and Royal Carpet) is also very easy to grow from seed and is commonly used in borders. Higher, but still good for borders, is Ageratum Blue Mink, a new variety with large blue heads 10 inches tall. Celosia (Coxcomb) has several good varieties in reds and yellows. Gomphrena should be used more. It can be cut and dried for winter bouquets.

Marigolds are of many varieties, both dwarf and tall. Many new ones have been developed that are odorless and thrive in hot dry places along with a favorite in every garden, the zinnia, with its many colors and sizes. Once in bloom, marigolds and zinnias display a mass of color till frost and make very good cut flowers.

There are many varieties of all the above mentioned annuals to chose from. The following list names some of more popular ones:

Petunias in the grandiflora group are: Maytime, pink, All America for 1958; Fire Dance, red; Tango, red; Popcorn, white; White Magic; and Blue Luster. In the multiflora class are: Glitters, red and white; Linda, salmon; Silver Medal, salmon; Red Satin, red, and new last year; Comanche, red; Mohawk, dark pink, a good grower; Pale Face, white; Pink Sensation and Brilliancy, dark pinks, and showy; Blue Ribbon, violet blue.

Some celosias are: Forest Fire, 30 inches high, reddish-green foliage with red flowers, very attractive, and new; Toreador, 18 inches high, red flowers; Kardinal, 8 inches high, dwarf red, very good for borders; Golden Feather, yellow, 12 inches.

Gomphrena: Rubra, reddish purple, 2 feet; Buddy, 8 inch dwarf, reddish purple; Cissy, a new dwarf white.

Dahlias: Unwins, dwarf, mixed colors, and giant mixed, tall growing, must be sown early.

Salvias: Blaze of Fire, red; America, red; Pink Sundae and Rose Flame, pinks; St. Johns Fire, dwarf red; White Fir, and Royal Blue, 30 inches, and very good.

Snapdragons: Hit Parade, mixed colors, also in many separate colors; Black Prince, deep velvet red; Golden Queen, yellow; Stardust, deep yellow; Bob White, and Memory, pink.

Phlox: Twinkle, All America 1957, and Globe, both dwarf and both mixed.

Verbenas: Alba, white; Royal Blue; Mayflower, a good pink; Venosa, lavender blue.

Asters: the new dwarf queens are very good and come in a variety of colors. They are new and can be used very well as pot plants.

Marigolds: Tall—Fluffy Ruffles, orange, 3 feet; Climax, yellow and orange, new; Man - in - the - Moon, lemon yellow; Crackerjack, orange and gold. Dwarf—Petite, new, in a variety of colors; Cupid, yellow and orange; Butterball, yellow, the most dwarf and compact.

Zinnias, large flowered: Treasure Island, a wide range of colors; Eldorado, pink; Dream, lavender; Scarlet Flame; Oriola, orange; Exquisite, light rose; Ortho Polka, variety of colors, new. Zinnia liliputs, small flowers: Canary Gem, yellow; Pink Gem; Lilac Gem; Scarlet and White Gem.

Cleome or Spider Plant: Pink Queen, 40 inches tall, very good for background.

Hello, March

Come, gardeners, join me in a toast
To the timely demise of yet another winter.
Come drink to the end of that impatient season
When lengthening days and warming sun
Proclaim a coming spring,
But still the frosty ground defies the sturdiest spade.

Anyone knows better than to think of gardens
In December; this would be nearly treason.
But after the stars and tinsel have been put aside,
Suddenly, on a warmish January day,
The old urge is back — and the old frustration.
Let's face it, only in the earliest blooming catalogues
Are there flowers in January.
The gardener can do practically nothing
But walk, walk, walk around the yard,
And flex twigs, and think:

"Here's a quince ready, almost, to force,
And there's a lilac rashly contemplating leaves.
Dear idiots, it's only January . . .
When was it — August — that the lovely maple died;
The new grass on its grave looks healthy, even green;
Oh how we'll miss that crimson tree this spring!
Yet here where once it cast
Its deep and daylong shade, is sunshine now,
And we can make a flower bed along the fence,
With phlox and daisies and delphinium,
And other old friends, and perhaps some new ones, too."

Of course, even in winter
The towering white pine is undismayed.
It makes work, a few needles to be swept from the terrace,
And it's truly profligate with cones.
Nowadays, a very small wind will serve
To scatter them lavishly. But alas,
It takes only ten minutes of a sunny afternoon
To pick them up and put them in a basket, so that they
May add their brief blue flame to the evening's fire.



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January has one good habit;
It is invariably followed by February.
Make no mistake about it; this month, too, is winter,
Although at times it flirts outrageously with spring.
The frost begins to slip away, and the neighbors
Accuse you of rushing the season,
For many are the days in February
When the gardener can stop thinking, walking,
Flexing twigs, and picking up pine cones,
And really garden.
Even if it is only the smoothing out
of bumps and hummocks which that man
Has left when he spread the sheep and peat —
This is part of gardening, I think.

The quince is blooming vicariously indoors
In the tall Persian pitcher, and so it's March,
Sometimes unamiable, often exasperating, always exciting.
In March, nothing is predictable
Except that the new shrubs will arrive
Just moments before the raw north wind and the snow.
But the dull winter days are gone; while the skier mourns,
The gardener girds his loins.
Trowel, rake, and snowshovel all are overworked
In nonsensical succession.

Sometime during this confusing month, an hour
Must be set apart for painting on the wooden bench
Some words that once we read and liked:
"Who loves a garden still his Eden keeps.
Perennial pleasures plants, and wholesome harvests reaps."

—By E. McL.





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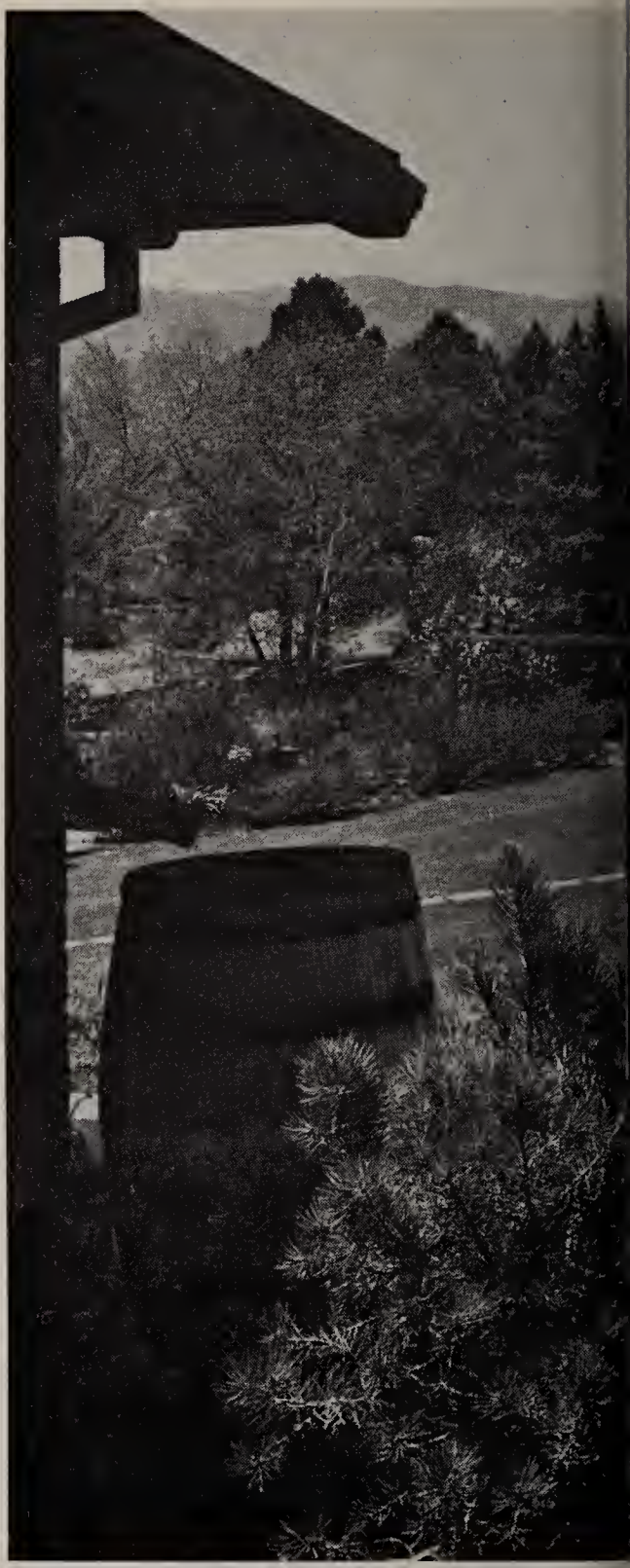
MRS. MARRIAGE HAS DONE IT AGAIN

By Janet Chapman

Mrs. Chapman is a director of the Garden Club of America and a member of the Broadmoor Garden Club. She has been gardening for 20 years, ever since she settled in Colorado Springs in 1935 as a former resident of Connecticut and New York State. Before 1935 she had never gardened and learned the hard way—by working with an old place much overgrown and neglected. We feel her story, which you are about to read, is excellent from the standpoint of giving the "know-how" most gardeners need when starting a garden of their own from scratch.

In Colorado Springs we had lived for 25 years across the street from a large estate which extended for two blocks east and west on a gently sloping hill. As has happened to so many of these ambitious properties, it was gradually neglected and finally was acquired by a subdivider. In order to protect our view of the mountains to the south and west, we bought, in 1940, the two lots immediately opposite our home. Except for a challenging slope on the eastern edge of this 110′ x 190′ lot, the land is level, with exciting views of the mountains both to the west and the south. These views are seen through magnificent plantings of evergreens which were started over 50 years ago and are now maintained by our neighbors on their properties.

Our thought in acquiring this land was to be able to control what might be built there, but as the years passed and our family scattered, we decided to build a small 5 room home for middle age and guest house, and start a garden which would be easy to maintain.



Excit

These lots in the original estate plan had been used as a rose garden. The few trees and shrubs then planted around the edges had long



the mountains are seen through magnificent plantings
evergreens from the Chapman's sun deck.

since died with the exception of an American elm which we are hoping to restore. It affords shade on the slope at the eastern edge of the property where we have built a sun deck.

After learning how to garden in Colorado the hard way, that is,

starting with a neglected piece of property and trying to bring it back bit by bit, it was a real thrill to start with a completely open area surrounding our new home and put into practice the many things I had learned.

It was our good fortune to have Mrs. Kathleen Marriage agree to do a plan for our garden. She has the happy faculty of working *with* her clients—not *for* them.

Because I wanted a garden which would be easy to maintain and material which could cope with prolonged dry spells, we used many native plants. Then, having decided to paint our new house barn red, we chose white flowering trees and shrubs with a dash of pink and red.

At the first conference with Mrs. Marriage, we discussed a list of my favorite trees and shrubs—ones I had discovered I could grow with success. This list included very few evergreens, chiefly because we have such handsome ones to enjoy between us and the mountains. My favorite evergreen is the foxtail pine, so it headed the list with the pinon pine and the western yellow pine as companions, and the mugho pine as a low growing evergreen to be planted on either side of the front door which faces north.

From the plan it will be seen that a grouping of the yellow pine was used east of the driveway to conceal a rather high retaining wall and anchor the lot into the hill. Two yellow pines were planted at the north west edge of the property for balance.

The two foxtail pines, planned as specimen trees, were placed in areas to the south and west where, as they grow, they will be enjoyed from the house and will not conceal any mountain view. Plantings of the pinon pine were used on either side of the sun deck on the east edge of the lot to shelter it from wind and to lend privacy to the garden.

My favorite white flowering tree is the Dolga crab and I had good luck in finding a pair which frame the front entrance and by their habit of growth will help to keep the house looking low and snug.

Another favorite tree is the Russianolive. It is fast growing, will survive with only natural rainfall, and lends itself to artistic pruning. This tree we used to shade the kitchen terrace and the west windows.

Next we decided to use two soft maples for shade on either side of the living room terrace. This choice was dictated by the fact that the only large size nursery-grown stock I could find were soft maples. Because they are planted near the house on the south side, they are protected from the north wind and should prove no problem.

Then for a spectacular tree and one which presents a challenge to a gardener, I selected a cutleaf weeping birch. This has been placed at the southwest corner, in front of a yellow pine, where its sparkling white bark against the evergreen is exciting to see in mid-winter and its gently stirring leaves in summer are a refreshing sight.

After Mrs. Marriage's plan was completed, I began hunting for the material needed. Because this was to be a garden for middle age, I wanted to find nursery stock as large as it was wise to transplant. Instead of being willing to wait ten years (as any young home owner should) for the desired effects in my garden, I wanted a showing in at the most

five years. I am delighted to have the garden look well established in three years as you will see it does from examining the accompanying pictures taken in August, 1957.

I spent long hours during the months before planting time visiting all the nurseries in this area and selected all the material to be used. When we planted in the spring of 1955, each tree and shrub was given a sizeable hole with the necessary food for growth. We were able to plant all the background material that first spring. I cannot emphasize too strongly that all new gardens will be greatly benefited over the years if there is a complete plan for the background material to be used, even if it must be planted in successive springs.

Because Colorado Springs had water rationing in the spring of 1955, we decided to wait until August to start a lawn, and so I was able to use all our allotment of water on the newly planted shrubs and trees. This irrigating I did myself. This plan certainly paid off because all the material survived its first winter in spite of a severe hailstorm that June and a very dry summer.

After planning the trees and shrubs to be used in landscaping, we next selected shrubs for hedges, keeping in mind that this graden must be easy and inexpensive to keep up. Hedges should not be formal—all material for them should need little or no trimming. Between the entrance area and the gravel driveway, a Mentor barberry hedge was planted. And to separate the kitchen garden from the area to the west of the house seen from the living room, blue mist spiraea was used. This is a very inexpensive shrub, blooming profusely in mid-



Back of the house, as viewed from the sun deck, showing the effective use of plant material.

summer, smoky blue in color, blending perfectly with the evergreens and the mountains. In winter the color of the seed pod compliments the weathered grape stake fence we used to give us privacy. Blue mist as a hedge can easily be controlled by cutting it back to within a foot of the ground each spring.

Then for an informal planting at the base of the slope to the sun deck, we selected potentilla. This has a yellow blossom, but seen from the house, rather than against the barn red, it doesn't present a problem.

Next, two plantings of one-seed juniper were decided upon because their height is also easily controlled. One planting forms a background for a bird bath which is the focal point of the garden as seen from the livingroom. These junipers will be allowed to grow tall enough to shut out neighboring roofs to the south. The second planting is west of the living room bay window which affords a spectacular view of Pikes Peak framed by the neighbor's evergreens, and these junipers will eventually conceal roof lines also.

Farther down the list were the following shrubs, all white flowering; lilacs, Ellen Willmott and Mt. Blanc; Flowering Almond; Thimbleberry; Fragrant Viburnum; Wayfaring tree; Highbush Cranberry; Ninebark; Mockorange. These were used mostly in large groups near the house, sparked by two pink Lucie Baltet lilacs.

Another group of shrubs were selected especially for their fall



This pleasant view from the terrace was accomplished in three seasons by the careful selection of the right plant material.



The Chapman residence, as viewed from across the street, is in harmony with its surroundings.

coloring. Among these was the mountain maple, a shrub which should be used more. It is fast growing, native to Colorado, apparently bug proof, and turns a lovely soft red in the fall.

Only the areas immediately adjoining the house were given a lawn because I wanted to save a large area south of the house for an experimental garden. To separate these two areas—lawn and experimental—plantings of corkbark euonymus, European burningbush, Father Hugo's rose, and Peking cotoneaster have been used in fair sized groupings. As seen in the view from the terrace toward the guest house, these shrubs have, in three summers, filled in effectively.

Again keeping in mind the maintenance problem, I have used ground coverings in areas around the edges where grass cutting would add to cost.

On the sundeck slope where the dirt was anchored with slabs of flagstone upended and staggered, I buried myrtle in the dirt to within 2 inches of its depth. This has grown remarkably well, concealing the flagstone, and is an attractive background when it blooms in early spring for the various types of narcissi which have been planted on the same slope.

Other kinds of groundcoverings which I have used with success are the native mahonia, veronica, a Montana strawberry, a pink rose, and euphorbia.

Examining closely the picture of the front of the garden and house, it will be seen that a retaining wall, built when the property was an estate, presented a problem. It was too well built to replace, so it was repaired, and now I am trying to be patient while attempting to cover it with euonymus. Enough cuttings were obtained from a neighbor to start layer plantings and after two winters and much summer care it begins to show. I hope in two more years to have the low wall covered and thus obtain a green effect winter and summer, for euonymus retains its leaves all winter.

The south line of the property has a high retaining wall. On this

I have successful plantings of bittersweet and various types of clematis, concentrating on Nellie Moser, which produces a very handsome lavender blossom.

Other vines which I like and have planted are Boston ivy, trumpet creeper and winter jasmine. This last is very exciting because it can be forced into bloom by cutting and bringing into the house in early January.

I'm delighted to find that all of the types of shrubs we selected need no extra care such as spraying, with the exception of the spiraea which harbors aphids that are fairly easy to control.

Do come and visit our young garden. I'm sure you will agree that Mrs. Marriage has done it again with a well thought out plan using much native material in keeping with the informality of the small house, and giving us an easy garden to maintain. One which, in 3 years, looks well established.

IN MEMORIAM MRS. KATHLEEN MARRIAGE

"Kathleen N. Marriage is considered a friend by hundreds of gardeners, very important ones and very humble ones." So said Ruth Ashton Nelson, noted authority in botany, in a letter written in 1956.

What greater tribute could be paid to our teacher and guide who has left us living growing things which bespeak her love and loyalty to Life itself.—MEH. *Editor's note: Mrs. Marriage passed away after Mrs. Chapman wrote her article but we felt that the title of it is also a tribute to Mrs. Marriage's genius and so it was not changed.*

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GARDEN THERAPY

MRS. H. D. DUSTON, *Colorado Federation of Garden Clubs*

If you can remember that day, long ago, on which you thrilled to the feeling of moist fertile soil, or first saw life spring from a tiny seed, then you are fortunate. Gardening has been your counterpart.

Recognizing that gardening has been a force for good in the likes of men for centuries, the federated garden clubs have instituted programs of rehabilitation extending from the strongest state organization to the smallest club, from physical and mental hospitals to the secluded shut-in. Persons, who themselves are garden lovers, volunteer to share and to show the way.

Many of the state federations have extensive horticultural therapy activities in open gardens or in green houses, and in planting, growing, cutting, and distributing flowers. This work is done by patients under "prescription" from their physicians. Extensive landscaping for hospital grounds, flower beds, and indoor plantings are other projects. For those able to attend, classes have been held in flower arrangement and corsage making, and flower shows have been staged. One state federation gave a fellowship for a year's study of supervised horticultural therapy at the state university. In hospitals, clinics, and convalescent homes, the green arm band, bearing the symbol of the National Council of Federated Garden Clubs centered by the state emblem, signifies the wearer's privileges there. For prone patients, the National Council has a library of microfilm books on nature and garden subjects to be projected on the ceiling. This circulation service is free of charge upon application of a club member.

Anything, though seeming small, reflects its good to the giver. Cheerful visits, cards, gifts, books, and magazines or tray favors of sorts bring the outside world in to the crippled child, the aged, and lonely. When taken by a garden lover, cut flowers can be freshened and rearranged, potted plants watered and groomed, the conversation can relate to their culture, plant lore and garden pleasures.

Illustrated are three kinds of gardens with therapeutic value. What boy would not like to have a garden of his own! In some instances, the materials can be assembled and the shut-in can learn to create a button garden, or to plant a terrarium. Choose a large button, glue upon it some coarse sand, and border it with larger pebbles. Add some soil, then place some starts of cacti and succulents, arranging them in a pleasing design. A small figurine may tell a story. An eye dropper accompanies each button garden for daily watering.



At Easter time, a garden in an egg shell can bring satisfaction to a patient longing to be out planting. Color the larger end of an empty egg shell, shellac it. When dry, fill with potting mixture, and it is ready for a tiny petunia, alyssum, a small slip of coleus or begonia, or a group of sedums.



While these gardens require daily attention which can be given by a patient, they occupy very little space on a bedside table. A terrarium is larger. Plants loving such warm moist atmosphere are many. A rose bowl, aquarium, cracker jar, or any glass container, fitted with window glass cover, can be used as a terrarium. A layer of coarse sand, a sprinkling of charcoal, about one inch of good potting mixture and



it is ready to plant. Moss may be used to line the container, but place it face down against the glass so that a green carpet is visible from the outside. For material, choose woodsy plants, moss, fern, violets and other wildlings. A shop handling plants can provide begonia, maidenhair fern, African violets, pepperomia, pilea, and others. If watered moderately when planted, it should not need more for several weeks. When condensation appears on the glass, the lid may be set ajar or removed until the drops disappear.

Mrs. Glen F. Gibbon, Pueblo, Colorado, directs the therapy work of the one-hundred ten federated clubs of our state, each club serving the needs of its community.

The book of Nature is the book of Fate. She turns the gigantic pages . . . a thousand ages, and a bed of slate; a thousand ages, and a measure of coal; a thousand ages, and a layer of marl and mud.

—From ESSAY ON FATE by Emerson

Maple is used for making beds—and the yokes of beasts; yew for ornamental work and chests and for stools; Kermes oak for the axles of wheelbarrows and the cross boards of lyres . . . beech for wagons . . . elm for door hinges and weasel traps.

—Theophrastus

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WHAT'S NEW?

PAULINE ROBERTS STEELE

Rhubarb that makes a wonderful rosy-red sauce so pretty that it just has to taste better, and it does. The flavor is excellent. Canada Red is a newer variety, although it is not "brand new." It has been on the market two or three years. I like to use the broad, thick leaves of rhubarb in a flower arrangement for something different in foliage. And nothing tastes as much like spring as rhubarb sauce. Be sure to grow one of the improved varieties.

A new dwarf, dark red cherry that sounds promising is named Dwarf Rich. A few are being grown in this area but have yet to bear. The fruit is supposed to be a little larger than our old reliable Montmorency.

A new crabapple with red leaves, red flowers, and red fruit is Ferril's Crimson. It is quite ornamental with its large, single red flowers, but still has to be proven absolutely hardy in this area. Once basic plantings are in however, it is fun to try a few new things—such as this new crab that sounds promising. You will find the above three listed in the new catalogue of The Kelly's Cottonwood Garden Shop.

Gardener Raymond H. Di Paolo is processing decayed leaves that are at least five years old into a mixture and packaging it for our convenience. He tells us that one of the main things this product does is "to encourage microorganism or bacteria growth." The value of conversion of dead organic matter into food for plants is a well-known fact to any gardener that has labored over a compost heap. One of Colorado's nurserymen describes this new product in this enthusiastic way: "It is Nature's own soil builder and conditioner." You will find it offered for sale under the same of Super Humus Leaf Mold.

Another good organic fertilizer is offered by McCoy and Jensen. They are processing the old standby cow manure, freeing it of weed seed, and are removing its objectionable odor. They describe it as smelling like "newly plowed soil." It is packaged in 1/5 bushel and 1 bushel containers. This should be good for potting and indoor planters.

There is a new tree wound dressing on the market that ends "Tar Baby" pruning. Repairing tree wounds and pruning cuts need no longer leave the gardener looking like a "Tar Baby" if he uses this handy aerosal tree wound dressing. The material sets quickly to form a smooth black seal against moisture and decay while natural healing is taking place. It is designed for rapid and easy treatment of wounds to trees and shrubs

resulting from accidents such as lawn mower collisions and close bulldozing, as well as from pruning and grafting. The new material is packaged in a 12-ounce push-button container and is sold under the name of DuPont Tree Wound Dressing.



1. Tree-trunk injuries resulting from bulldozing or power lawn mower collisions should be repaired before decay and disease do further damage.
2. Cut away loose bark, and smooth the edges of the injury with a sharp knife, leaving a channel which will drain water out of the bottom of the wound.
3. DuPont Tree Wound Dressing covers the injury neatly and easily, giving Nature a better chance to heal the damage.

A news item on the scientific side of gardening caught our interest. Antibiotics (you have been taking them for the flu) are being used successfully against fireblight, that bacterial disease of the rose family that does so much damage to apple trees. It is not an uncommon experience in Denver to lose a fine and valued tree from fireblight. Now, in New Jersey, scientists, with the help of our friend the bee, are using an ingenious scheme to whip this disease. Timing is an important factor for it has been found that bees can spread the disease from flower to flower. Closely spaced, thorough spraying has been the control method in the blooming period. Scientists trapped the bees on the way to the orchards and allowed them to escape through a device that dusted them with streptomycin. The small amount that the bees carried protected the fruit blossoms from fireblight. One gathers from the news item that there is much to be done in the practical application of this to our own needs but we thought you would find this of interest. P.S. Streptomycin is one of the antibiotics used for bacterial infection in man.

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GOAL FOR 1958—AN HERBACEOUS UNIT

By ROBERT L. WOERNER, *Director*

A milestone was passed in the development of the Denver Botanic Gardens in January when the City Council gave its approval for the use of a portion of the former Calvary Cemetery site as a new botanic unit for the growing and display of annuals, perennials, bulbs, and other herbaceous plants.

The first unit of the Botanic Gardens will be continued and expanded in its present location in City Park. This will become the arboretum or woody plant collection as defined in the master plan for the development of the gardens. Experience has proven that with the heavy demands placed on City Park for picnics, concerts, and other activities, a complex planting requiring a high level of maintenance cannot be protected and properly cared for in the park. The new site on York Street will provide garden space that can be devoted entirely to botanical purposes and completely protected against thefts and vandalism.

The herbaceous unit will contain all of the important garden plants (excluding trees and shrubs) suited to the Denver area. Some of the first plantings will be colorful displays of the best varieties of annuals. Perennials will be grown in a series of gardens—in mixed beds for continuous bloom; in special groups for spring, summer, or fall shows; in beds planned for different cultural conditions; and in gardens displaying individual types of flowers. Medicinal plants will occupy four or five small areas. Culinary herbs will be grown in a door-yard garden typical of colonial days. Other plantings will include succulents, rock garden plants, economic plants, and model gardens showing examples of home grounds development. Hedges and vines, although classed as woody plants, will be used in this unit for landscape effect, for the division of garden areas and for screening. Testing grounds, displays of foreign plants, new introductions, and a scientific garden are also being planned. Although this garden unit will be modest in size, it will be as complete a botanical collection as can be made in keeping with the policy of growing the best plants for the region.

The educational activities of the Botanic Gardens will be shifted to this new site and a headquarters building will be provided for expanded public service in 1958. Funds for this building have been made available from private sources, a very great gift to the people of Denver. In addition to offices for the staff, space will be available for permanent quarters for other gardening groups. The structure will house a horticultural library and an herbarium, and there will be rooms for meetings, classes, and small flower shows. The need for such a

building has long been evident and it will enable the Botanic Gardens to become useful as well as ornamental and fulfill the obligation to disseminate knowledge of plants to the people.

The testing and introduction of new plants to the herbaceous unit will be a continuous research program. In addition, limited research projects will be undertaken as funds become available. These will primarily be concerned with the development for landscape use of native Colorado plants. Many potentially useful indigenous species and varieties have never been adequately tested under controlled conditions. This is a field in which the Denver Botanic Gardens can be of great service to horticulture, both economically and aesthetically.

In developing this new area, the Botanical Gardens Foundation has not requested additional city funds, which means that the cost of the construction of these gardens will have to come from donations and gifts. With the great interest in gardening in the region and the many organizations and plant societies who will benefit from these herbaceous plantings and building facilities, it should not be a difficult task to undertake the project. Each and every member of the Colorado Forestry and Horticulture Association can help by interesting their friends, neighbors, and garden clubs in this great garden endeavor. They can help in the promotion of the coming garden show and fair which is being sponsored for the joint benefit of the Association and the Botanic Gardens. The year 1958 will be an important one for the Botanic Gardens, and every reader of The Green Thumb can have a part in making it a success.

NEW OFFICERS NAMED BY BOTANICAL GARDENS FOUNDATION

At the annual meeting of the Botanical Gardens Foundation of Denver, Inc., February 7, 1958, the following officers were elected: Mr. Lawrence A. Long, president; Mrs. Alexander L. Barbour, Dr. J. R. Durrance, Mrs. James J. Waring, vice-presidents; Mr. M. Walter Pesman, secretary; Mrs. J. Churchill Owen, assistant secretary; and Mr. John C. Mitchell, treasurer.

Mr. Thomas P. Campbell and Mrs. George H. Garrey were named as members of the executive committee.

Trustees re-elected to the board at the meeting included Mrs. Alexander L. Barbour, Mr. Thomas P. Campbell, Mr. Robert E. More, Mrs. J. Churchill Owen, and Mrs. Everett H. Parker.

Mrs. Ed H. Honnen was elected as a new member of the board.

Other trustees of the Foundation are: Mrs. James R. Arneill, Jr., Mr. William H. Ferguson, Mr. Fred R. Johnson, Mr. Maurice N. Marshall, Mr. Hudson Moore, Jr., and Dr. Moras L. Shubert.

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Linc Mueller admires a fence just treated with the new wood finish.

A NATURAL WOOD FINISH FOR OUTDOOR USE

ELMER W. SHAW, *Editor*
Rocky Mountain Forest and Range Experiment Station [1]

Gardeners and homeowners in Colorado are finding that a brand new natural wood finish developed by the U. S. Forest Service in its world-famous Forest Products Laboratory (FPL) at Madison, Wisconsin, really does the trick.

The finish is especially good on redwood or western redcedar siding, but it is equally effective on lawn furniture, picnic tables, rustic fences, mountain cabins, and other outdoor structures.

Not yet available on the open market, this handmade mixture is most popular with do-it-yourselfers, partly because of its low cost. The finish preserves the natural beauty of the wood. It doesn't peel or crack like many other outdoor finishes. Yet it holds up for about 5 years before it needs renewing. Cost of the mixture runs about $2 a gallon.

This new finish has been under test for the past 2 years at Fort Collins, Colorado. In charge of the testing is Lincoln A. Mueller, Chief, Forest Utilization Research, at the Rocky Mountain Forest and Range Experiment Station.

Linc, as he prefers to be called, has done quite a bit of experimenting with the finish himself. He's tried several variations in the basic formula, worked out improvements, and encouraged local homeowners to give

[1] Maintained by the Forest Service, U. S. Department of Agriculture, with headquarters at Fort Collins in cooperation with Colorado State University.

it a try. His cooperators have used it in many ways—on the campgrounds in the Roosevelt National Forest, on the Hahn Farm at Colorado State University, on rustic buildings at the Fraser Experimental Forest, as well as on new residences, patio fences, and lawn furniture.

In a nutshell, here's the formula for a 5-gallon batch of the cedar-colored FPL natural finish:

Raw linseed oil	3 gals.
Mineral spirits or turpentine	1 gal.
Burnt sienna color-in-oil	1 pt.
Raw umber color-in-oil	1 pt.
Paraffin wax	1 lb.
Penta concentrate 10:1	½ gal.
Zinc stearate	2 oz.

To prepare the FPL finish, pour the gallon of mineral spirits into a 5-gallon pail or open-top can. Put the paraffin and zinc stearate in a pan and heat over a flame. Stir until a uniform mixture results. Pour the mixture into the mineral spirits, stirring vigorously while it is being added.

Caution: There should be no open flame in the room at the time the paraffin mixture is being added to the mineral spirits, because the hot mixture raises the temperature of the mineral spirits to a point where it might catch fire.

When the mineral spirits solution has cooled to room temperature, add the ½ gallon of pentachlorophenol concentrate, and follow with the linseed oil. Then stir in the colors-in-oil, a little at a time, until the mixture is uniform. It is then ready for use.

A clear finish is not recommended; but by varying the amounts of burnt sienna and raw umber colors-in-oil, many shades can be obtained to suit individual preferences.

The light redwood finish differs from the cedar finish only in the proportion of burnt sienna and raw umber colors-in-oil. For the light redwood color, 1 1/3 pints of burnt sienna color-in-oil and 2/3 pint of raw umber color-in-oil are used.

The dark redwood finish differs from the cedar finish in that the burnt sienna and raw umber colors-in-oil are reduced to ½ pint each, and 1 pint of pure red iron oxide color-in-oil is added.

"We don't claim that the FPL finish is the ultimate in natural finishes," Linc says, "but it is as economical to make and maintain as any we have seen or been able to develop in 10 years of research effort."

For more information on this promising natural wood finish, write to: Director, Rocky Mountain Forest and Range Experiment Station, 221 Forestry Building, Fort Collins, Colorado; or to the Forest Products Laboratory, Madison, Wisconsin.



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OUR FIRST GARDENING AND HORTICULTURAL STAMP

A great man will be honored this month. On March 15 a commemorative postage stamp will be issued at Ithaca, New York, where the centennial of Liberty Hyde Bailey will be celebrated at the Hortorium in that city. This stamp will also pay tribute to horticultural associations and garden clubs of America which have done, and are still doing, so much to preserve the natural beauty and resources of the country.

Liberty Hyde Bailey was born in the forests of Michigan on March 15, 1858. At this time there were over twelve million acres of white pine in that state. Bailey lived to see this vast forest reduced to only eighty acres.

Bailey was one of the first students in our first agricultural college, established in a small clearing in the forest near Lansing, Michigan. He taught at Cornell from 1888 to 1951, serving as professor of horticulture, dean of the New York State College of Agriculture, and director of the L. H. Bailey Hortorium. His writings include 41 books on botany and horticulture including 2 encyclopedias, 7 on agriculture, and 15 on rural sociology and philosophy. He made 128 plant-collecting expeditions, one alone when he was 91 in the upper Amazon region, founded the fields (and often the names) of plant pathology, nature study, and soil technology, and was the world authority on palms. His love of nature and scientific investigations began in childhood and continued throughout his entire life. He died Christmas night, 1954, at his home in Ithaca.

While the stamp which will be issued on March 15 is intended to pay tribute to the memory of our beloved Liberty Hyde Bailey, the design just released does not carry his name or the dates of his centennial. The stamp will picture Mother Earth holding a horn of plenty surrounded by other products of the garden and will be printed in green.

It is hoped that all "Green Thumbers" will make wide use of this stamp and will publicize the fact that it was issued to honor our *great* and good horticulturist, Liberty Hyde Bailey!

KATHRYN KALMBACH



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These are the winners, finest new mums to start the procession of All-America Mums for the future.

The red cushion mum "Ruby King" rewards us with a beautifully mounded plant covered with ruby red double blooms. Harmonizing with brick and orange shades and complementing greens, contrasting with white, Ruby King fits varied locations. Use it for foundation plantings, bordering lawns, drives, and walks, as clump plantings at entrances, and for a show of vibrous color in annual and perennial border plantings.

Scores of informal cushion type blooms of one and one-half to two inches blanket the rich green foliage from late September to frost. The sturdy, weather-resistant plants fill 12 to 15 inch domes or even wider. Highlighted with flame red and the backs of petals with gold, Ruby King is a fall glory.

"Burning Bronze," of two and one-half foot growth and two and one-half inch double blooms in large clusters, provides profusion of vivid autumn coloring. It opens to an exciting mahogany bronze over a lively scarlet base. Then comes the tingling color medley of tangerine, bronze and orange. Cutting sprays are exceptionally long lasting.

"Emperor" is the vibrant big decorative mum of nature's favorite golden yellow. In late September the opening buds pass through bright bronze with orange tints into the richest of yellows. Four inches or more across on strong, sturdy stems, Emperor displays huge bloom sprays for cutting. Even with its size, the big pinwheel blooms literally cover the plants from top to bottom, year after year.



Ruby King



Showpiece



Emperor

"Showpiece" is just that, a giant hardy decorative of four inches or more without disbudding. Very full, shapely blossoms have long graceful petals slightly incurving at the center. Of a sparkling royal rose, petal reverses enhance the rich coloring with silvery mist highlights. Vigorous plants grow two to two and one-half feet high with lush foliage for a lavish floral display by late September.

These four: Showpiece, Emperor, Burning Bronze, Ruby King, are the new hardy, outdoor chrysanthemums of 1958. Each plant carries the red, white and blue certification tag of honor, All-America Mum Winner.



Burning Bronze

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NEW HORTICULTURAL COLOR CHART NOW AVAILABLE

The American Horticultural Council, after years of constant search for a popularly priced color chart, is now making available to the horticultural public the Nickerson Color Fan. This new contribution, developed by Miss Dorothy Nickerson, Color Technologist in the U. S. Department of Agriculture, with the cooperation of the Munsell Color Foundation, should be considered a color standard in all phases of horticulture.

The Color Fan folds into a booklet 7½" long by 1¾" wide which easily fits in any pocket or handbag. It contains 262 colors of 40 hues. Included with each color chart is a twelve-page booklet explaining the use of this fan in detail. Printed in small letters on each color, is the popular color name and its numerical designation in the Munsell color system, which is fast becoming accepted as standard by many industries and societies dealing with color systems in America. The chart uses color names that have been selected as standard by the Inter-Society Color Council and the National Bureau of Standards.

As one uses this chart and becomes familiar with it, the numerical color system is the means for estimating the value of colors which may not appear in the chart but do appear in the flowers or fruits being studied. With practice the notation may be used to express as fine a color difference as the eye can see. There should be no difficulty for observers with normal color vision to agree regularly on the nearest hue and value, and within reasonable limits on the closest chrome. It is this factor of one's being able to estimate colors accurately according to this numerical system which makes this chart so valuable.

The Nickerson color fan can be opened up into the form of a complete color wheel. If wanted, a form is obtainable on which all of the leaves can be pasted to form the complete color wheel. This type of chart is frequently necessary in studying complementary colors for flower arrangements. However, the ease with which the fan can be folded and carried in the pocket makes it of inestimable use as a reference in the field as well as indoors.

Due to a grant last year to the American Horticultural Council by the Longwood Foundation, Nickerson Color Fans are now available for exclusive distribution to horticulturists and horticultural organizations at $5.00 by application to Donald Wyman, Secretary, A.H.C., Arnold Arboretum, Jamaica Plain 30, Mass. Annual Council members are entitled to one copy at a discount of 10%. Lot quantity purchases at discount are also possible.

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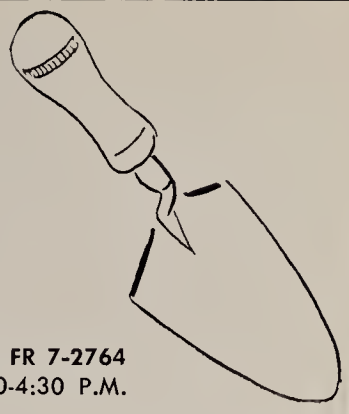
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ADVISORY COMMITTEE ON STATE WAYSIDES MEETS

The Advisory Committee on State Waysides, appointed by Bill Yersin, of Burlington, chairman of the Colorado State Park and Recreation Board, held its first meeting on January 31 in the office of Director Harold W. Lathrop in the State Capitol Building.

M. Walter Pesman is chairman of the Advisory Committee and the other members are S. R. DeBoer, George W. Kelly, Clyde Learned, Mrs. Frank E. Neal, and Fred R. Johnson.

There was a discussion of the "Wayside Policy Statement" adopted by the State Park and Recreation Board. Mr. Lathrop stated that county commissioners have been requested to furnish information on existing roadside parks, or *waysides,* by which name they will be designated in the future. Commissioners are reporting on the condition of waysides and on whether the counties are willing to guarantee the maintenance of such areas after the Park Board rehabilitates them.

The Board requested recommendations on proposed new waysides but these will not be installed unless counties guarantee to maintain them.

The new Board is proceeding cautiously. It adopted a general policy statement at a meeting held on January 16. Director Lathrop has promised to write an article for an early issue of The Green Thumb on the plans and policies of the Park Board.

At the request of the Board the Colorado Recreation Society appointed an Advisory Committee on local recreation services. This committee consists of Stewart Case, chairman, of Fort Collins; E. P. Romans, Englewood; J. Earl Schlupp, Denver; Stewart Richter, Colorado Springs; and Lyle Beaver, Greeley.

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Seasonal Suggestions

Kites dangling from trees and power lines, crocus and jonquils braving the weather, flecks of frost in the new turned earth, lawns black with unnecessary top dressing, fertilizer peddlers, venturesome robins, fierce winds, and pleasant days—these are signs of spring. But in the mile high plains country spring really won't put in an honest appearance till the middle of May. The seasoned gardener, however, knows this and plans his gardening accordingly.

Soil preparation is one thing that can be accomplished on sunny days providing the soil has thawed enough to be workable. Whether you are preparing to put in a new lawn, new flower beds, new trees and shrubs, or whether you are planning on revamping existing flower beds, the preparation is similar. Basically, our soils, either sand or clay, lack organic matter as well as some essential elements. The only way organic material can be added to the soil is to put on a sufficient quantity and spade it in. Chemical fertilizers should be applied to the surface of the soil later. To large areas, apply two yards of cow or sheep manure, leaf mold, or peat moss per 1000 square feet. For smaller areas cover the soil with 1 or 2 inches of the above. Spade under and mix it well with the soil; then leave it alone until planting time.

Most trees and shrubs can be transplanted now. Your local nursery will have ample supplies of bare-rooted plants to chose from. Again, soil preparation is the most important step in planting trees or shrubs. The best of plants won't perform well in poor soil. Spend a little extra time and money on this important step.

Be sure to dig a hole large enough to receive a tree or shrub without crowding the roots, and incorporate peat moss, at least 30% by volume, to the soil used in the back fill.

Good gardens come from planning and not from wishful thinking. Use unpleasant days to think out the changes you would like to make in your garden. Give some thought to how you might better enjoy your outdoor living room. Things like garden lighting, screening for privacy, enlarging the patio, can be planned and executed now. Get a copy of George Kelly's new book "Good Gardens in the Sunshine States." It's loaded with new ideas for gardens.

Other suggestions for March include checking your garden tools. Make sure they're in good repair for the busy season ahead. Apply dormant sprays to your trees and shrubs for the control of scale insects. If you want to start your own bedding plants from seed, see article on page 52.

Please check the qualifications of door to door nursery salesmen and fertilizer peddlers. This suggestion is for your protection because there are a lot of phonies that come to town every year at this time.

Above all, be patient. Don't uncover roses and other tender things. It may seem like spring, but beware of the Ides of March!—PAT.

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The Green Thumb

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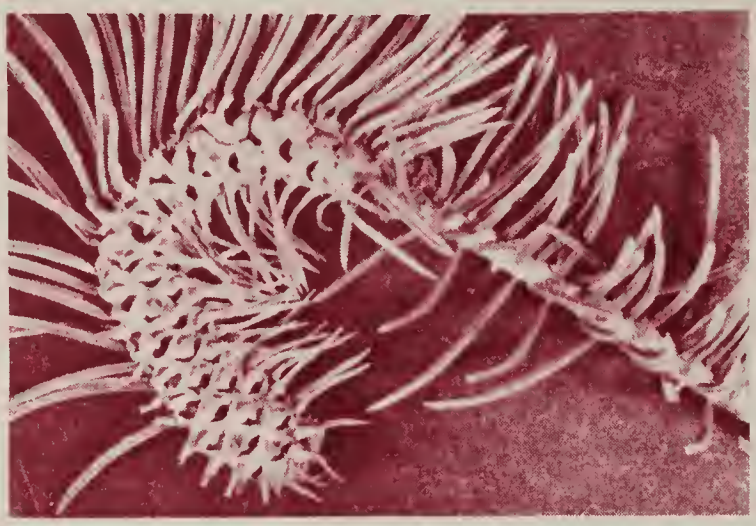
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The Green Thumb

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The Green Thumb

Vol. 15 APRIL, 1958 No. 3

Colorado Forestry and Horticulture Association

Organized in 1884

"To preserve the natural beauty of Colorado; to protect the forests; to encourage proper maintenance and additional planting of trees, shrubs and gardens; to make available correct information regarding forestry, horticultural practices and plants best suited to the climate; and to coordinate the knowledge and experience of foresters, horticulturists and gardeners for their mutual benefit."

OFFICERS

President Kenneth Wilmore
Vice Presidents.....Clyde Learned, Mrs. James J. Waring, Mrs. Alexander Barbour
Secretary.....Mrs. Frank McLister
Treasurer Lemoine Bechtold
Executive Committee.....The above named officers plus Fred R. Johnson, Herbert C. Gundell
Assistant Secretary-Treasurer.....Helen M. Vincent
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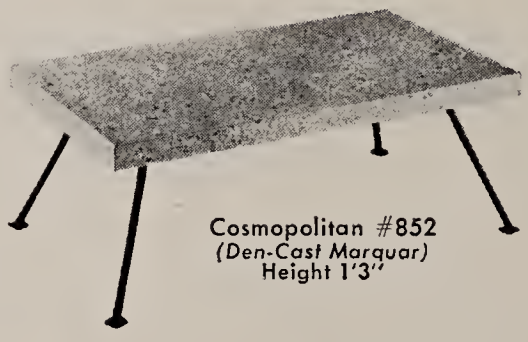
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MEMO

Calendar of Events

"Fun with Flowers" — A lecture and demonstration is followed by the making of arrangements. Each person brings containers, mechanics, and material. The workshops are open to everyone. Due to popular demand the workshops will be held each month at the following times and places:

Workshop No. 1 — 1422 Kenton, Aurora, Second Thursday, 9:30 a.m. Chairman: Mrs. Fred Harper, 270 Jersey, Denver.

Workshop No. 2 — Lakeside Denver Dry Goods, 44th & Harlan, Denver, First Tuesday, 10:00 a.m. Chairman: Mrs. C. C. Buckbee, 4190 Depew, Denver.

Workshop No. 3 — Englewood State Bank, 180 East Hampden, Englewood, Second Wednesday, 10:00 a.m. Chairman: Mrs. H. E. Cluphf, 3888 South Grant, Englewood.

Workshop No. 4 — Arapahoe County Fair Grounds, W. Belleview and Windemere, Littleton. Third Tuesday, 10:00 a.m. Chairman: Mrs. John Sobilla, 386 North Windemere.

April 2—Botany Club meets the first Wednesday of each month, 7:30 p.m. Horticulture House, 1355 Bannock.

April 9 — Organic Garden Club meets the second Wednesday of each month, 8:00 p.m. Horticulture House.

April 10 — Denver Rose Society meets second Thursday of each month, City & County Bldg., rm. 100, 8 p.m.

April 30—10:00 a.m., Central District, annual meeting club reports, Speaker, 1265 Broadway, Mrs. J. A. Walker, presiding.

May 2—Botany Club meets the first Wednesday of each month, 7:30 p.m. Horticulture House, 1355 Bannock.

May 14, 15 and 16—Flower Show School, Course V. 9:00 a.m. to 3 p.m., 1422 Kenton, Mrs. J. S. Rodwell, 1186 Racine, Denver 8, Colo., local chairman.

May 16, 17, 18—Garden Show and Fair, D.U. Fieldhouse.



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HONORARY TRUSTEES ELECTED

On January 10 the Board of Trustees of the Association amended the bylaws by adding the following section:

"Any person who has served a full term or more on the Board of Trustees, and whom the Board wishes to honor, may be elected an honorary trustee by a majority vote of the Board. Such a trustee may attend all meetings of the Board but may not have the privilege of voting or holding office."

Announcement of the election of three honorary trustees was made at the annual meeting on February 13. The three, who have given distinguished service to our Association and who are retiring from active duty on the Board, are Mrs. Vella Hood Conrad, Mrs. Helen K. Fowler, and Mrs. John Evans.

Mrs. Conrad has been an active worker in this Association during the past eight years and a trustee for six years. She has served as chairman of the membership committee, co-chairman of the editorial committee, on the publicity and house committees, and in many other capacities.

She has been active in the Denver Rose Society and in the establishment of the Denver Botanical Garden. An expert gardener herself, she finds it necessary to withdraw from active duty in the Association for reasons of health. Her message to the membership is: "Carry on in accomplishing the objectives of the Association for a more beautiful city and state." Our best wishes to you, Vella, for a return to good health.

Mrs. Helen Fowler has been a member of the Board of Trustees since 1945. During her first year on the Board, as a member of the membership committee, she brought in about $1000 in new memberships. During 1946, as chairman of the library committee, she raised $3000 for a library. In March 1948, the Board of Trustees designated it as the Helen K. Fowler Library, its nucleus being 500 volumes from her own collection. She continued to raise money for the library, and for a time had a committee of sixty ladies, who had monthly meetings for educational, social, and library advancement purposes.

At present the library has about 3000 volumes, with an inventory value of over $8000. The library fund, from which books and magazines are purchased, had a balance of $2063 on December 31, 1957.

Those of us who have known and appreciated Helen Fowler during the past twenty to thirty years will recall her artistic appearance at Shadow Valley Gardens with her french garden hats, her lambs wool knee pads and her enthusiasm and great knowledge of gardening and plants. She was a frequent contributor to The Green Thumb. Helen, our appreciation to you and best wishes for a return to good health.

Mrs. John Evans was elected president of the Colorado Forestry and Horticulture Association at its first meeting on February 26, 1944 at which time the consolidation of the Colorado State Forestry Association (first organized in 1884) and the Denver Society of Ornamental Horticulture was effected.

Upon the formation of the new organization, it was decided to start a gardening, horticulture, and conservation magazine, and the first number was issued in February 1944, under the name of The Green Thumb.

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Mrs. Evans arranged for George Kelly to take over as editor, in which capacity he continued for ten years, building up the magazine until it acquired a national reputation. Kelly worked part time at first, and, in January 1947, Mrs. Evans arranged for him to devote full time as editor and horticulturist.

An office for the Association was established at 1608 Broadway and L. C. Shoemaker was engaged as secretary and treasurer. This was inadequate for a growing organization, so Mr. and Mrs. Evans purchased an old building at 1355 Bannock Street. Following the plans of an able architect, the interior of the house was completely remodeled, and on July 12, 1947 it was opened under the name of Horticulture House. It has faithfully served the Association's needs during the past eleven years, thanks to the generosity of Mr. and Mrs. Evans. (Its end is now in sight with the erection of the new Denver University Law center at this location.)

Mrs. Evans was active in the formation of the Denver Botanic Garden Foundation of Denver, and was its first president. In 1952, after serving eight years as president of the Colorado Forestry and Horticulture Association, Mrs. Evans asked to be relieved, but agreed to continue on the Board of Trustees until the end of her term in January 1958. She has supported its activities financially and in many ways. You will agree that designation as an Honorary Trustee is small recognition for the many years of leadership, planning, and service she has given. Our deepest appreciation for her wonderful support.

Mrs. Evans' message to the membership is: "May this Association continue for many years as an independent organization exercising leadership in gardening, horticulture, street and shade tree planting, and conservation."

—FRED R. JOHNSON



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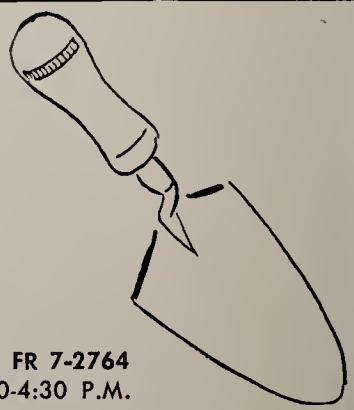
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FOUR NEW MEMBERS ELECTED TO BOARD OF TRUSTEES

Mrs. N. Rulison Knox

A native of Sidney, Australia where she lived until her marriage, Mrs. N. Rulison Knox came to the United States and lived for many years in Milwaukee, Wisconsin where she was an active member of The Green Tree Garden Club. She moved to Denver two years ago bringing with her a love and enthusiasm for gardening as well as an active interest in civic affairs.

Her lovely, small, enclosed garden, displayed on last year's Look and Learn Tour she designed herself. She is a member of the Garden Club of Denver which belongs to the National Council of State Garden Clubs, Inc.

Mr. J. C. Blickensderfer

Mr. J. C. Blickensderfer of 9 Parkway Drive, Englewood is an enthusiastic gardener on his 2½ acres of land above "the ditch," acreage which is still in the process of being landscaped. Aside from this time-consuming task and the usual preoccupations of job, home, and family, Mr. Blickensderfer belongs to the Cherry Hills Men's Garden Club and the Cactus Club, with skiing and mountain climbing vying for time in his busy schedule.

Mrs. John R. Nickels

A member of Colorado Forestry and Horticulture Association since 1947, Mrs. John R. Nickels serves and has served horticultural organizations in many capacities.

Currently, she is president of the Colorado Federation of Garden Clubs, is an amateur nationally-accredited flower show judge, a member of the Floral Art Study Club and the Friendly Gardeners, as well as an honorary member of the Miraflores Garden club of Littleton. She is also a member of the American Iris Society and the National Audubon Society.

Residing at 133 N. Sherman avenue she was proclaimed Littleton, Colorado's most valuable citizen for 1957 for her numerous civic deeds. In 1949 she organized and federated the Friendly Gardeners and served as president for two years.

She has served the Colorado Federation as first, second and third vice-president and as State Auditor.

Born in Wisconsin and reared on a farm in North Dakota she developed an early appreciation for nature and growing things.

Mrs. Hudson Moore, Jr.

Mrs. Hudson Moore Jr., daughter of Mr. and Mrs. John Evans, has been a member of the Association for some time, helping with last year's Garden Fair and serving on various committees. A member of the Garden Club of Denver, she served as its president for two years and is also a member of the Perennial Garden Club. Mrs. Moore has her own greenhouse where she can be found working in her spare moments.

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Arrangement of the Month

Mrs. Herrington's use of orange-red geraniums in an antique metal vase shows imagination and skill with a rather stiff flower that ordinarily does not lend itself easily to the graceful form shown here.

Heavy, massive flower heads and leaves are balanced by a massive, solid-type vase. Height and grace are added by longer geranium stems in bud stage, inserted at an angle, counter-balancing the horizontal base of the container. It's an altogether charming arrangement for brightening dark, pre-spring days.

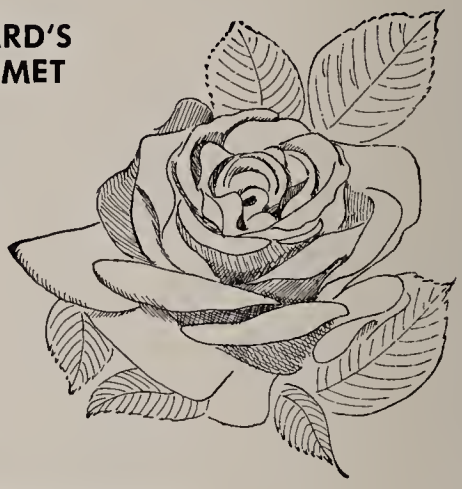
Arrangement by Mrs. Cass Herrington
Photo by Jack Fason

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Juniperus horizontalis 'Filicinus'.
A dainty dwarf creeping juniper.

EVERGREEN "REMBRANDTS" FOR THE ROCKY MOUNTAINS

By ROBERT E. MORE

Recently The Brooklyn Botanic Garden listed "The Hundred Best Trees and Shrubs for Temperate Climates." *(Plants and Gardens* for Autumn 1957.) Director Dr. George S. Avery, Jr., refers to these as America's "Rembrandts." The description is apt indeed. Botanic Gardens have for many years selected and exhibited the choicest creations of nature. And today, in ever increasing numbers, home owners wish to do the same. In the March, 1956, *Green Thumb* I discussed the "Best Evergreens for the Rocky Mountains." Classifying plants by size and growth habit I suggested a preferred list and a supplementary list. Some of these trees were Rembrandts. Many, however, were not Rembrandts, but were the varieties that a conscientious nurseryman should sell to John Lazy Public; the trees that can "take" Colorado's pests and its difficult climatic, soil and drought conditions—and owner neglect. But we have many home owners who are students of horticulture, who will give special and loving attention to capricious plants, and who are even willing to take a moderate gamble if a plant of distinction can be proudly exhibited. This discussion is, therefore, for this considerable number of real connoisseurs. I shall follow the same order of discussion I did for the "Best Evergreens."

CREEPING EVERGREENS

Blue Wilton Creeping Juniper *(Juniperus horizontalis)* is choice and tough as well. It is the dwarfest of evergreens, and its bright blue foliage and berries make it a rock garden gem. The dainty, lacy FILICINUS *(J. horizontalis)* should also be in this garden of our "Man of Distinction."

LOW SPREADERS

The Russian Savin Junipers *(J. sabina)* BROADMOOR and BUFFALO are both very special. BROADMOOR is staminate but, like its Spanish cousin *J. sabina tamariscifolia,* seldom carries pollen buds. BUFFALO (not yet, but soon obtainable in the trade) is a bright green berry bush without rival where a low spreader is desired. Incidentally, both BROADMOOR and BUFFALO are hardy in zones 2 to 7.

For rich soil, where full protection from sun and wind is possible, the following true collector items should all be tried: DWARF HINOKI FALSECYPRESS *(Chamaecyparis obtusa nana),* HETZ MIDGET ARBOR VITAE *(Thuya occidentalis)* and DWARF JAPANESE YEW *(Taxus cuspidata nana).* Don't let any nurseryman who doesn't relish bothering with a special order of these plants from far away tell you they "won't grow in this area." They will, if properly located and decently cared for.

LARGE SPREADERS

There are many superb plants in this group. TAMARIX JUNIPERS *(J. sabina tamariscifolia)* growing in this area never fail to astound visiting nurserymen. The "Tami" likes conditions here, and grows faster and larger than in any other area. A dwarf in the east, it will here form a perfect and graceful mound five feet high and twelve feet in spread in fifteen years. And it is tough, pest free and blight free in this area. PFITZER JUNIPER *(J. chinensis pfitzeriana)* must be in this list, for all people who have room to let it grow *untrimmed,* to its ultimate size of ten feet in height and twenty feet in spread! But don't put PFITZER in a location where it has to be cut back. A trimmed PFITZER is "just another evergreen." The PFITZER, incidentally, is not only a hardy Rembrandt, but one that can take any adversity or neglect besides.

Choice items for a large but wholly protected area are BROWN and HALLORAN JAPGARDEN YEWS *(Taxus media).* In this group must also be included TABLETOP JUNIPER *(J. Scopulorum).* Be sure, however, to insist that this plant has *berries.* Some TABLETOPS are staminate grafts and some pistillate. Berries add much to the attractiveness of any evergreen. The red berries of the yews here recommended, and the blue berries of TABLETOP are very pleasing. One other most choice plant that is not available commercially now, but which will be in a few years, is the DWARF BLUE SPRUCE *(Picea pungens* 'Dwarf') of the Arnold Arboretum. As fine a color as the Moerheim graft but spreading, multiple stemmed and quite dwarf, I feel it to be one of the world's choicest items. The parent plant is forty years old, four feet high and six feet across. It grows faster and will grow larger in Colorado, however. Perhaps it realizes that Colorado is "home."

DWARF AND SEMI-DWARF UPRIGHT TREES

Trees that can be placed under the eaves of a ranch style house and that will *stay there,* without trying to lift the roof off, are always welcome. If the location is very shady and wind protected, the DWARF ALBERTA SPRUCE *(Picea glauca conica)* is a *must* for very home of distinction. It is as perfectly symmetrical as though pruned monthly, grows from two to four inches a year, and eventually will get to be six to eight feet high.



Picea glauca conica.
The perfect dwarf upright.

A pine that is dwarf in this area, particularly if the candles are cut each year, is the SWISS STONE PINE *(Pinus cembra).* It, too, is perfectly formed, and its silver touched needles, five in a cluster, are graceful indeed. Don't put it in alkaline soil, or it will get yellow.

A slightly faster growing tree but still one that will keep in scale for years is the BALKAN or MACEDONIAN PINE *(Pinus peuce).* Coarser



Juniperus scopulorum 'Hall Sport'.
Semi-dwarf upright that needs no pruning.



Pinus aristata.
At timberline.

and more rugged than the SWISS STONE PINE, the BALKAN can "take" everything our climate ever offers, even in zone 2 locations. It has great value.

A wholly new introduction *that is available commercially* is HALL SPORT JUNIPER *(Juniperus scopulorum).* It is so new that its ultimate height is unknown. It was grafted from a sport branch of a HALL JUNIPER, which had juvenile acicular foliage. Trees that are now seven feet high still have this juvenile foliage. It is *very* slow growing for a scopulorum, so compact and sharply pointed that one is certain a pruner's shears have been employed, and a splendid silver color.

MEDIUM SIZED UPRIGHT TREES

This group will attain a height of ten to fifteen feet in twelve years, and thirty-five feet and better eventually. To me, the Rembrandt of Rembrandts is GLENMORE NOOTKA FALSECYPRESS *(Chamaecyparis nootkatensis).* Graceful, slightly drooping, frosted foliage and perfect symmetry of form make it unique. Besides having spectacular beauty, it is completely hardy. The variety is available commercially.

The two most spectacular junipers in the Denver Botanic Garden are GLENMORE BLUE SIERRA *(J. occidentalis)* and a fine, blue, pistillate ALLIGATOR JUNIPER *(J. pachyphlaea).* The former is a graft available in the trade. It has very large berries and the most brilliant of blue colors. It is so glaucus that the new twigs and foliage seem covered with hoarfrost. The ALLIGATOR isn't available as yet in grafted form, so berry specimens of unusually fine color must be personally selected from a nurseryman who has them—and few do.

A superb juniper is Scott Wilmore's patented GRAY GLEAM *(Juniperus scopulorum).* It is staminate, not pistillate as I stated in the March, 1956 *Green Thumb.* It is difficult to transplant if purchased B. &. B. (balled and burlapped) but gives no trouble if secured in a can. Another *J. scopulorum,* BLUE HAVEN, often called BLUE HEAVEN, is a magnificent blue pistillate tree that always bears a profuse berry crop.

I do not feel that any of the grafts of *J. virginiana* rank as Rembrandts.

A pine that has individuality, character, and the ultimate in picturesque appeal is our native BRISTLECONE or FOXTAIL *(Pinus aristata).* And it is the nurseryman's despair to get started. It is fussy as to location, and capriciously inconsistent in what it deems a proper location! Certainly it is that it wants sun and drainage. For this reason it usually gives no trouble when planted about a mountain home. When it grows naturally near timberline, it is indestructible. A BRISTLECONE has been accepted as the "Oldest Living Thing" by Dr. Edmund Schulman of the University of Arizona, who states that the age of three has been placed at over four thousand years.

LARGE TREES

I list but two here, the WHITE or CONCOLOR FIR *(Abies concolor)* and BLUE SPRUCE *(Picea pungens).* WHITE FIR is my favorite evergreen. The older it gets the more symmetrical its form. It should be in every graden. BLUE SPRUCE is Colorado's State tree, and, given room to develop to specimen proportions, knows no rival. The Moerheim graft is very fine, but it is always possible, in Rocky Mountain nurseries, to select a seedling of almost equal merit.

The person who acquires one or more Rembrandts should be given two cautions: First, trees of a given species vary greatly and, wherever possible, individual selection of the tree should be made. Second, proper planting (appropriate location, good soil, thorough watering in, etc.) is indispensable, and regular care (watering, pruning, spraying, sometimes snow protection, etc.) must be given. To permit a GRAY GLEAM to become infested with aphids or red spiders is inexcusable.

Try some of these Rembrandts.



Abies concolor.
The choicest large evergreen.

ROADSIDE IMPROVEMENT OF COLORADO HIGHWAYS

By CLYDE E. LEARNED



An area reseeded with fireweed along the Chicaga Creek Road.

The Federal Aid Highway Act of 1940 for the construction of Federal Aid roads by the States provided that federal funds may be used for roadside and landscape development work, including such sanitary and other facilities as may be deemed necessary for the accommodation of the public. The act also provided that such construction may include the purchase of adjacent strips of land of limited width and primary importance for the preservation of the natural beauty along the constructed highways.

Later, the 1956 Act for the construction of the Interstate System of 41,000 miles was passed by Congress. The manual of instructions of the U. S. Bureau of Public Roads for the preparation and submission of detailed estimates for the cost of completing the Interstate System of Highways provides for occasional roadside rest areas and roadside parks of limited size, as well as for the construction of side or spur roads to vantage points for scenic overlooks. The Act also provides that the States will be reimbursed up to 90% of the cost by the Federal Government for the necessary right of way and for the construction costs involved in these improvements.

It is apparent from these two acts, as well as from the previous act of 1938 that the Federal Government, through the U. S. Bureau of Public Roads, is in favor of and is trying to encourage the States to embark on a Roadside and Landscape development program, and is willing to bear a major portion of the cost.

Last year—1957—the Colorado State Legislature established a State Park and Recreation Board, following which Gov. Steve McNichols appointed a seven member board. Later the Governor appointed Harold W. Lathrop of Wheatridge as director of the Board.

The creation of this Board and the appointment of a director affords a wonderful opportunity for this group to co-operate with the Colorado State Highway Department in the selection and construction of a number of roadside park-

ing areas and small parks along the nearly 700 miles of Interstate Highways in Colorado.

It is believed that if a proper approach is made, the right of way for many of these areas will be donated by public spirited land owners or civic or garden clubs.

In planning a roadside improvement program for Colorado, two classes of highways would normally be considered. The first group would include those highways in the eastern portion of the state or those generally east of U.S. 85, the main north and south highway through Trinidad, Pueblo, Colorado Springs, Denver and Cheyenne. The eastern part of the state is for the most part open terrain with flat to open topography, and the building of roadside parking areas would be quite a problem because of lack of forests and running streams of water.

The second group of highways would include those west of U.S. 85, which lead to the mountain regions through numerous canyons, such as Ute Pass, Bear Creek, Clear Creek, Boulder, So. St. Vrain and Poudre Canyons. These mountain and canyon roads are usually endowed with a great deal of natural scenery, and are usually through wooded areas and along a stream. Since these latter routes lend themselves to landscape treatment and campground development, their improvement is often a matter of conservation. Excellent examples of what can be done on this class of highway are afforded by the Bureau of Public Roads Forest Highway Betterments operations on the Boulder Canyon and So. St. Vrain Canyon highways, also the Squaw Pass, Echo Lake-Chicago Creek Highway.

The highways in the eastern portion of the state would for the most part serve the tourists, whereas the second group extending west into the mountains would serve the local residents as well as tourist and recreational seekers from all parts of the nation.

The improvement of highways in the eastern part of the state would, in general, not be a matter of scenic or landscape beautification, but rather a question of finding an existing grove of trees, usually cottonwoods along a water course, and then developing a rest area or campground. This work ordinarily includes side road turnouts, clearing for a parking area, selective removal or pruning of trees or shrubs, building of concrete table and bench units, constructing fireplaces, installation of toilets and garbage disposal pits or trash cans and, if feasible, the development of a water supply by either pumps or windmills.

The roads to the west of U.S. 85 are usually located through attractive regions in which the natural surroundings, besides affording excellent campground possibilities, also lend themselves to pleasing and artistic landscape improvements. This landscape work normally includes selective cutting and thinning of trees for beautiful vistas, building of scenic overlooks at vantage



Masonry fountains such as this, supply spring water to Chicago Creek road-travelers.



Concrete tables and fire places built by the Bureau in Boulder Canyon.



One of the many roadside areas in Boulder Canyon.

points, top soiling and seeding of slopes, obliterating barrow pits, and flattening and rounding slopes. In general, where rainfall is adequate or a water supply is available, planting of trees, shrubs, and vines as well as seeding and sodding of slopes, not only adds to the ornamental value of a highway but pays for it by preventing or reducing erosion and assisting in weed and fire control.

On the four lane divided highways, particularly the urban portions, the state should be encouraged to plant trees and shrubs along the center median strips and along the outside edge of the right of way. The planting of trees and shrubs in such areas creates an effective sound barrier which reduces traffic noise and headlight glare and furnishes an attractive screen which restores privacy to adjacent homes.

The purpose of roadside planting is primarily to protect bare soil areas from erosion, to furnish shade and roadside rest areas, to control drifting snow, and in many cases, to outline the outer edge of the highway, and improve night driving conditions.

All landscape development work, if possible, should be designed for a minimum future maintenance.

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New York, Connecticut, Michigan, Ohio, California, and Texas have made a commendable effort to improve their roadside areas to the point where their convenience and beauty are a real asset to the state road building and public relations program.

Since Colorado is one of the nation's leading tourist and recreational regions, it would seem that every effort should be made to construct more highways which will be pleasing to the eye and will have more service facilities built into them.

In making this last statement, it is appreciated that climatic conditions in many sections of Colorado are more or less semi-arid, and are therefore not favorable for plant and tree growth. Such conditions make it uneconomical or impractical to attempt extensive landscape projects, except possibly at carefully selected locations.

No roadside improvement discussion would be complete without mentioning the status of billboards along our highways. Many of you will recall that the last Colorado legislature killed a bill prohibiting the erection of billboards within 500 feet of the highways on approximately 700 miles of the Federal Interstate System of Colorado. In this connection it is hoped the State Park and Recreation Board will lend its support in an effort to convince the members of the next legislature of the desirability of eliminating the unsightly and dangerous advertising billboards from the national system of interstate highways in Colorado. The best argument against billboards is that numerous public opinion polls conclusively indicated the traveling public does not want them cluttering up the right of way of these superhighways upon which billions are to be spent in an effort to make them an efficient and attractive transportation system.

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WHY MERION KENTUCKY BLUEGRASS

By HERBERT C. GUNDELL
Denver County Agricultural Agent

I became quite curious about five or six years ago when the word went from coast to coast that if one wanted the best in lawn grass one should try Merion Bluegrass. Merion Kentucky Bluegrass is nothing more than a selection of Kentucky Blue which was first observed on an eastern golf course some years ago. Turf grass specialists found this grass to be more desirable in several respects and set out to collect seed and to produce this new selection of our well tested Kentucky Bluegrass for further increase. Most of the seed production of this newer grass selection has been, since then, in the Pacific Northwest where a relatively small number of growers control practically the entire commercial output of Merion Kentucky Bluegrass seed.

Five or six years ago, this seed was enormously expensive. That is, expensive to our way of thinking when one compared it with the going price of regular Kentucky Bluegrass of good grade. Then you were lucky to get Merion Kentucky Bluegrass at six dollars a pound, while Kentucky Bluegrass in those days sold for seventy-five cents to ninety cents a pound for good quality, properly cleaned, and germination-tested seed. Since that day an interesting thing has happened. Public acceptance of this grass was not so overwhelming that all of the seed produced could be sold at such a high price. Naturally, as the law of supply and demand took over the price of Merion Kentucky Bluegrass seed gradually came down until the 1958 catalogues list it generally from two dollars to two dollars and fifty cents per pound. At such a price level, Merion Kentucky Bluegrass is not out of reason and certainly deserves more than casual consideration.

I have observed many Merion Kentucky Bluegrass lawns in pure stand in the Denver area for up to five or six years. In most instances, it should be admitted that the person who pays such a high price for grass seed is willing to do a better than average job of soil preparation. This was an excellent booster for Merion Kentucky Bluegrass and wherever it was planted, it did very well for the proud home gardener. When I faced the problem of planting a new lawn during the summer of 1957, I naturally evaluated all the pros and cons of this new strain of Kentucky Bluegrass and decided to give it a try in my own front and backyard. I can say frankly, that Merion Kentucky Bluegrass so far has not disappointed me in the least. I found that it germinated relatively evenly under ideal conditions in about six to ten days. It proceeded to make a very admirable stand in the following two weeks and by the end of the growing season it had established, in some instances, a root system between six and nine inches deep, which is certainly amazing, considering that it had only a 12 week growing period during 1957 before the end of the season. In fact, the grass grew so vigorously I had to mow it at least twice a week for an attractive cut of about an inch and a quarter. One of the real assets of Merion Kentucky Bluegrass is that it spreads quickly and has a more prostrate form of plant growth which helps to cover a new turf area. It did show good color throughout the entire growing season and appears to be coming up very evenly and very well col-

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ored again this spring of '58, the time of this report.

The major problem that Merion Kentucky Bluegrass presented to a number of Denver home gardeners during 1957 was an extreme infestation of rust disease. This rust is a fungus which spreads quite rapidly if the conditions of climate and weather are favorable. We found, however, in many circumstances where adequate nitrogen fertilizer was applied often, the rust disease was not as prevalent. In other words, a home gardener, who has a Merion Bluegrass lawn, should establish a fertilization schedule of three to four annual applications, preferably in early April, late May, early July, and late August of each year. The commercial fertilizers for Merion Kentucky Bluegrass should be either a pure form of nitrogen or a commercial low analysis fertilizer that contains approximately a 2 - 1 - 1 ratio of nitrogen, phosphoric acid, and potassium. It has also been my observation that the proper cut for Merion Kentucky Bluegrass is approximately from 1 to 1¼ inches. The question of removal of the grass clippings is one which must be decided by individuals. I, for one, do not believe in removing any clippings during the first part of the initial growing season. I can, however, see where this coming year, with a heavy growth the removal of clippings from time to time might be necessary. If you do remove clippings, don't discard them in the alley, but compost them so that the benefits of your grass clippings can then become of greater value to your flower garden the following year.

As I compare the performance of Merion Kentucky Bluegrass and Kentucky Bluegrass, I offer this additional bit of advice: If you want a bluegrass lawn that can stand a lot of traffic and that is not too fussy about being mowed or fertilized with regularity, I would say Kentucky Bluegrass is your answer. If on the other hand, you are willing to do a little extra work in both mowing and fertilizing and are willing to give a lawn the type of care for the ultimate in beauty, then Merion Kentucky Bluegrass is for you. Whichever the case, both grasses are satisfactory and should be mentioned in the same breath when recommendations of local grass varieties are made.

GEORGE KELLY'S NEW BOOK,

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GARDEN CLUB BRIEFS

By MRS. H. D. DUSTON

Of value to every gardener is the Flower Show School, Course V, which will be held at 1422 Kenton Street, Aurora, Colorado, May 14, 15, 16, 1958.

Mrs. J. L. Webb, Houston, Texas, will instruct in flower arrangement and color harmonies. Mrs. Webb has taught in more than 25 Texas cities, in several other states, in Mexico, and in Denver in 1956. She attended the advanced Symposium in New York in 1955, has been an accredited instructor since 1951, and in 1956 was approved to teach the Advanced Refresher Courses.

Professor Ernest F. Reimschilissel of Provo, Utah, will instruct in landscape design and horticulture. He is a graduate of Brigham Young University and received an assistantship in the School of Floriculture and Ornamental Horticulture. He is now instructor in the Department of Horticulture at Brigham Young University.

Mrs. J. S. Radwell, 1186 Racine Street, EMpire 6-1044, is the local chairman if you would like further information.

About the busiest person in garden club work is State President Mrs. John Nickels of Littleton. Besides visiting many clubs and giving talks on subjects such as "Garden Clubs and How They Grow," "Inspiration from Japanese Arrangements," "Flower Show Pointers," she conducted an all day work shop for presidents and chairmen in Loveland in January, spent two days with the Glenwood Springs Club in March, and in Leadville talked to the Top of the World Club on "What's New in Horticulture." She conducted a flower arrangement workshop in Greeley, and is scheduled on the horticultural conference program in Pueblo in April to demonstrate and talk on plant propagation. She will be the leader on the "Bird Walk" in the annual spring count of birds in Deer Creek Canyon with the Open Gate Club of Englewood. These are just a few of the many dates on the full calendar of Mrs. John Nickels who is enthusiastic and happy in her leadership of the garden clubs.

A garden club too new to be named was organized this month in the Columbine Country Club area—the seventh club to date for the gardeners in Littleton, Colorado. The new subdivision of Broomfield Heights already has three garden clubs.

"Tuberous Begonias in Every Member's Garden" is the horticultural project for the Suburban Garden Club in Lakewood. Since this is a new experience for most of the members, a series of lessons on the culture of begonias was begun in January. The club's flower show in August will feature the begonia in both divisions of arrangements and cut specimens.

Mrs. Carl N. Collister, Longmont, the bird chairman of the Colorado Federation of Garden Clubs, issues a monthly news letter to local clubs giving items on club activities, hints on feeding and attracting birds, and personal observations and experiences. Her last letter told of a Paonia, Colorado, woman having seen eighteen humming birds in the air at one time taking syrup from her feeders. Mrs. W. C. Sullivan of Boulder saw an albino in a flock of Redwing blackbirds at her farm this winter, and the Longmont Club, led by Mrs. Collister, took the seventh annual Christ-

mas Bird Count in their area which is a project of the National Audubon Society. Total number of species recorded in the one-day count was 52, including one Bald Eagle, four kinds of Owls, an Eastern Blue Jay, Mocking Birds, Redpoll, and some of the more common species.

Flower show committees have been at work for some time now. As dates and places are announced, they will appear in The Green Thumb Calendar of Events. The Grand Junction Garden Club, winner of several national purple ribbon awards for flower show achievement, has set its two-day show opening for Saturday, May 24, at 4:00 p.m. The Crestmoor Park Club of Denver is set up for May 22 and 23.

Mrs. William T. Eccles has recently been chosen to represent the Rocky Mountain region in the 1958 Sterling Bowl Tournament, an annual competition for the nation's outstanding flower arrangers. The event will take place June 25 in Newark, New Jersey, in the Sterling Bowl.

Mrs. Eccles was selected as Colorado's best flower arranger by the state Federation of Garden Clubs and will be one of fourteen competing in this national contest. She began the hobby of flower arranging 10 years ago when she took her first course. Since then, she has won 32 blue ribbons throughout the state at various flower shows. In 1956 she captured the gold cup and sweepstakes award at the Denver Rose Show. She is an approved instructor of flower show schools and qualifies as a flower show judge. With such outstanding past achievements, Mrs. Eccles will be a strong contender for first prize—the $5,000 perpetual challenge trophy.

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WHAT'S NEW?

By PAULINE ROBERTS STEELE

Manure is important to growing things—not so much as a source of nutrients, but as a means of imparting humus to the soil. This makes soil more friable, allowing it to retain more air and water, and makes nutrients available to plant roots. Raw manure normally contains a large percentage of sand, moisture, and weed seeds. REAL McCOY Weed-Free Manure is highly refined, with sand and moisture removed and weed seeds killed by controlled heat. Look for it at your favorite seed store or garden shop. The REAL McCOY is an all beneficial soil-building manure.

A new use for vermiculite comes to us under the trade name of BAR-B-SORB. A coarse vermiculite (¼″ to ½″ pieces) is available for a barbeque firebox. It produces a better draft for proper heating when placed under charcoal, absorbs drippings, and keeps the firebox clean, and virtually eliminates flare-up. And you, Mr. or Mrs. Gardener, do not need to be told of these advantages once you have used it in the barbeque or in your compost heap to aerate and condition it. Disposal is no problem.

One of our more progressive garden shops is suggesting a new use for some of our old friends. Use rugosa roses for mass shrub plantings. They will grow to thorny heights of 4 to 6 feet and will tolerate some clipping for orderly boundaries. Excellent for that property line where you need a barrier but do not wish to build a fence. These roses make a good background for annuals and perennials as well as give color to gardens with blooms that appear after most other shrubs have finished blooming.

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MRS. G. R. (KATHLEEN O'NEIL) MARRIAGE

Mrs. G. R. Marriage died on February 22. Colorado lost an eminent citizen, and the world lost an eminent horticulturist. A resident of Colorado Springs for many years, she was a member of the advisory board for parks and recreation there, was a former regional vice president of the American Horticultural Society, and one of the most valued members of the Colorado Forestry and Horticulture Association. She designed the planting at Horticulture House. Mrs. Marriage studied famous gardens and garden design in France, England, and Scotland, was a graduate of the University of London and came to this country in 1912 and married George R. Marriage in 1913. She founded her unique Upton Gardens in 1916, which was to become a world famous nursery for alpine plants. She sent our native *Boykinia jamesii* to the Chelsea Show in London where it received an award of merit. Mrs. Marriage was a fellow of the Royal Horticultural Society of London, a member of the International Alpine Society, and a member of many other horticultural organizations.

Mrs. Marriage was an authority on native plants and alpine plants and on garden design. But to all who knew her, it was Kathleen, the person, who will live in memories. Her bright wit, unfailing good nature, generosity and courtesy made her an "unforgettable" person.

Her catalogues were eagerly sought, not only for the unusual plants available at Upton Gardens—and no where else in the world—but for the whimsical footnotes to every page such as, *Mirabilis multiflora, magenta flower, widely branched, 2 feet—not so mirabilis.*

When a new catalogue would come in the spring, first these footnotes would be read, with constant chuckles—*"God made all creeping things" but if they infest your garden ask for our spray expert.* Then the list of plants. ("I can't buy everything, but I can put in my dry wall this year.") And then the cultural pointers would be read and reread. In the center of the catalogue was Intermission, two pages of detailed instructions on the handling of alpines with references to leading texts. An Upton Gardens catalogue furnished technical information no where else available. One more footnote chuckle taken from her catalogues: *Linaria vulgaris—like a miniature snapdragon (really not vulgar).*

Kathleen was a busy person, but could always find time to help others —and give the credit to them for her contributions.

—ROBERT E. MORE

NEWS ITEM

M. Walter Pesman, chairman of our Editorial Board, is flying to Europe for a tour of several months. While there, he plans to attend the International Horticulture Congress being held in Nice, France, this year. Mrs. Wm. H. Crisp will serve as chairman in his absence. Our very best wishes for clear and pleasant flying. We look forward to your return.

BOTANIC GARDENS — CENTER OF HORTICULTURAL INTEREST

The botanic garden can and should be the center for horticultural interests in an area. This is particularly true in the Denver region, with its unique climate and growing conditions. We hope that the Denver Botanic Gardens can accomplish this through the development of a new headquarters on the York Street site this year.

Perhaps we should examine just what such a headquarters will mean to the gardeners and horticulturists of the area. To begin with, the buildings involved in such a headquarters will be specifically designed for the functions of a botanic garden. We have listed these functions in other articles in The Green Thumb, but it bears repeating that the botanic gardens will do more than just display a collection of plants. They must serve the public, the botanist, and the horticulturist alike. An educational program for maintenance gardeners and homeowners is important. Existing knowledge must be passed on and new knowledge must be derived from basic and applied research. These and other functions can be accomplished only through the utilization of adequate facilities.

We are planning for a building which will do more than give office space for the botanic gardens staff. Adequate space will be available to incorporate the offices, library, and herbarium of the Colorado Forestry and Horticulture Association. The botanic gardens will profit greatly by having the fine Helen Fowler library readily available for research and reference. The same holds true of the herbarium which can be augmented by existing specimens belonging to the botanic gardens, not to mention future collections and herbarium specimens of trees, shrubs, and flowers grown in the display areas. The Association will also benefit by this close association through a ready interchange of gardening information, more space for meetings and classes, and a great outdoor garden.

A second step toward the development of this center will be accomplished when the state federation of garden clubs accepts the offer of office space. This group with more than 2,000 members formerly operated a garden center in a Denver park. We will be very happy to have them associated with the botanic gardens for a permanent, central office. We hope, too, to encourage other national and local plant societies to use the headquarters for their permanent mailing address. This will eliminate the confusion which results from a change in officers annually. The botanic gardens will then have complete information on societies to answer all inquiries. Close cooperation from all interested groups will permit maximum use of the meeting rooms and auditorium without conflict. It will permit greater participation by all, for many people have interests in several branches of horticulture and find a considerable overlap in activities at the present time.

The new headquarters will not be limited to horticulture groups or garden clubs. Commercial people engaged in arboriculture, lawn construction, landscape gardening, nursery sales and the like, may find the facilities at the botanic gardens ideal for short courses, meetings, and other activities. Botany students, both graduate and under-

graduate, will find the gardens, herbarium, and library of great value. The general public will probably account for the greatest use, for they will write, visit and phone the horticultural center for the answers to a thousand and one garden questions, and they can be assured of an answer from the appropriate agency. Cooperative classes conducted jointly by the Colorado Forestry and Horticulture Association and the botanic gardens will be open to all. Wherever there is a demand for knowledge concerning plants, we will try to meet that demand.

A modest propagating facility is planned for the herbaceous plant unit, consisting of multiple use greenhouses, lath houses, and cold frames. This will be a great asset in developing our botanic gardens, for plants can be propagated from seed, grafts, and cuttings obtained from botanic gardens throughout the world. The same greenhouses can be used for experimentation and research. They will also provide a source of plants and plant materials for horticultural instruction ranging from plant taxonomy to the care of house plants. Space permitting, classes may also use the houses for bulb forcing and other group participation courses.

In addition to the many gardens of annuals, perennials, bulbs, herbs, and other plants which will be built by the botanic gardens, the protected areas adjacent to the buildings will be used for the exhibition of rare and tender plants. The very landscaping of the headquarters can contribute much towards its becoming a true horticultural center. An alpine or "cold house" might be another worthwhile building in conjunction with our administrative unit. Here foreign or indigenous alpine plants might be grown successfully for comparison and study.

With the very limited staff that is available to our botanic gardens, we will be dependent upon specialists in the many divisions of horticulture lending their assistance in the research programs undertaken by the gardens. Various plant societies can help in their fields of interest, and we look forward to a close association with universities in the area. This can easily be accomplished if the headquarters of the botanic garden becomes the center for horticultural interest in Denver and the Rocky Mountain Region. The Botanical Gardens Foundation will do its part by providing adequate offices, class rooms, and other needed space, well equipped to meet the needs. With the most welcome support of the Colorado Forestry and Horticulture Association, the garden clubs, and all interested gardeners, there is no reason why Denver cannot have an outstanding horticultural center.

ROBERT WOERNER, Director.

. . . the planting season is at hand. Let every man, whose soul is not a desert, plant trees; and that not alone for himself—within the bounds of his own demesne, but in the streets, and along the rural highways of his neighborhood. Thus he will not only lend grace and beauty to the neighborhood and county in which he lives, but earn, honestly, and well, the thanks of his fellow men.—*From The Horticulturist and Journal of Rural Art and Rural Taste, March 1847*

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IN MEMORIUM DR. A. E. HOLCH

In the passing of Dr. A. E. Holch on March 12, 1958, the Association lost a staunch member and the entire Rocky Mountain area lost a fine educator in the fields of plant ecology and conservation.

Dr. Holch was born in Gillman, Illinois, and was graduated from the University of Illinois in 1912. He later received a master's degree in music and a Ph.D. in plant ecology from the University of Nebraska. Beginning his teaching in Cortez, Colorado, he served there as superintendent of schools in 1913 and 1914. From 1914 to 1918 he was principal of Cripple Creek High School, and then went on to Peru, Nebraska, where he was on the faculty of Nebraska State Teachers College until 1932. In 1932 he returned to Colorado and joined the faculty of Denver University as chairman of the Botany Department, a position he retained until his death.

Many Association members will remember visiting his lovely garden at 140 Krameria several years ago on one of our Look and Learn Garden Tours. Although a small garden, it contained a great number of different plants.

I, as well as many other of his students, will remember him as a quiet, soft spoken teacher who had an uncanny ability to make students think and work for themselves. Under his guidance the most exacting of plant sciences became easy. His lectures and inquiries formed logical stepping stones in the study of plant communities, and conservation, one of his specialties, took on broad and practical meaning.

Keenly interested in the history of botany and plant sciences, Dr. Holch spent much of his spare time studying the lives of early botanists. Theophrastus, the father of botany, was one of his favorites, and like Theophrastus, Dr. Holch will live on through his philosophies and teachings passed on by his students, generation after generation, for knowledge freely and truthfully given knows not the bounds of time.

—PAT GALLAVAN

OUTSTANDING LOCAL CONSERVATIONIST RECEIVES NATIONAL AWARD

The Leopold Medal for outstanding contributions to wildlife conservation was recently awarded to Dr. E. R. Kalmbach at a Wildlife Society meeting in St. Louis, Missouri. Dr. Kalmbach is a former director of the U. S. Fish and Wildlife Service Research Laboratory in Denver.

His wife, Mrs. Kathryn Kalmbach, longtime member of our Association and on our Board of Trustees, recently received recognition, too, on Radio Station KRMA for her unusual stamp collection. For many years Mrs. Kalmbach has collected stamps that have flowers somewhere in the design and has grouped them in her album according to plant families. KRMA felt this to be such an unusual hobby they asked Mrs. Kalmbach to tell others about it the evenings of March 11 and 18. Perhaps her hobby was inspired by her husband's artistic talent in designing first day covers for wildlife stamps. It was through his efforts that the conservation series came into being. The Aldo Leopold Medal was richly deserved. Congratulations, Dr. Kalmbach.

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Seasonal Suggestions

According to our calendar, spring officially arrived a week or so ago. However, only a rank novice would put any faith in a calendar in the High Plains country, for here April blows hot and cold. Those of you who recall the 15 inches of snow last May 15 know that nature is reluctant about giving us any spring weather at all. Since it is such a problem month for gardeners, we suggest you obtain a copy of George Kelly's new book HOW TO HAVE GOOD GARDENS IN THE SUNSHINE STATES. At the first sign of inclement weather, sit down and read it. In this book George has expanded two-fold all the information in his first book, Rocky Mountain Horticulture Is Different. It is profusely illustrated with good pictures and drawings and is full of different ideas. The addition of a complete index makes this a most valuable garden reference book, available at Horticulture House as well as at most of the bookstores and nurseries in this area.

A second suggestion and food for thought is a quotation from the mast head of Trees Magazine—don't suppose Ed Scanlon, its editor will mind: "No place is complete without trees. A home without trees is charmless; a road without trees is shadeless; a park without trees is purposeless; a country without trees is hopeless." This quotation seems most apt because this month is dedicated to Arbor Day throughout the world. Here in Colorado Arbor Day falls on the 18th of April this year. By act of the Colorado General Assembly in 1889 the third Friday in April was set aside. Tree planting from then until now has changed many of our plains, cities, and towns from raw prairie land to oases. In the past ten years of tremendous growth, our communities have fallen behind in tree planting. Do your part in putting charm, shade, and purpose back into our communities. Plant a tree this month and encourage your friends and neighbors to do the same.

April, while unpredictable, is still our best month for planting trees

Last chance for pre-growth spraying of evergreens. Abundant moisture this spring means a good growth year, make arrangements today for planting.
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and shrubs, particularly bare-root nursery stock. You will find that your nurseryman will have a complete line of plant material that should be planted now. If you're developing your garden on a budget, remember that the key to garden success in this area is proper soil preparation. Be generous with the size hole you dig even though your back might not like to go along with the idea. Incorporate at least ⅓ peat moss by volume to the soil used in the back fill.

It's also a good time to start new lawns or re-seed old ones. Here again soil preparation is a must. Two yards of humus material—cow or sheep manure, leafmold, or peat moss per 1000 square feet—turned under at least 6 inches is the standard recommendation, plus a top dressing of peat moss after the seed is sown.

Watch for bits of spring color as tulips and other early spring flowers burst into bloom. Spring will really arrive about the middle of May.—Pat

ATTENTION!

HELP NEEDED FOR GARDEN SHOW AND FAIR

As indicated in the flyer mailed with the last issue of The Green Thumb, the Garden Show and Fair has grown in size and importance. To make it a success we need the support of our entire membership. There are many committees hard at work, but most of them can use additional help. If you would like to join one of these committees, please call Horticulture House.

The ticket committee needs a number of persons to sell tickets in various neighborhoods. These tickets are 50 cents each and come in books of ten. If you would like to purchase some for your own use, or if you feel you can sell a few, call TAbor 5-3410.

Still looking for material is the white elephant committee. Mrs. H. M. Kingery, 2215 Locust or Mrs. Alexander Barbour, 335 Humboldt, will accept such articles for selling at the Fair.

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The Green Thumb

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MAY, 1958 35c

The Green Thumb

COLORADO'S GARDEN MAGAZINE

Special Garden Show Issue



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May 16, 17, 18

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"How to Grow Good Gardens in the Sunshine States"

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The Green Thumb

Vol. 15 MAY, 1958 No. 4

Colorado Forestry and Horticulture Association

Organized in 1884

"To preserve the natural beauty of Colorado; to protect the forests; to encourage proper maintenance and additional planting of trees, shrubs and gardens; to make available correct information regarding forestry, horticultural practices and plants best suited to the climate; and to coordinate the knowledge and experience of foresters, horticulturists and gardeners for their mutual benefit."

OFFICERS

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Secretary Mrs. Frank McLister
Treasurer Lemoine Bechtold
Executive Committee The above named officers plus Fred R. Johnson, Herbert C. Gundell
Assistant Secretary-Treasurer Helen M. Vincent
Editor *Patrick J. Gallavan*

This issue of The Green Thumb is dedicated to all the loyal volunteer workers whose untiring efforts have made this year's Garden Show possible. You will find a profile of each of the general committee chairmen in the following pages. This is a tribute to their excellent and capable leadership in staging this Garden Fair. To these people, to their sub-committees and committeemen we all owe a debt of gratitude for the stimulation this show will give gardening in the metropolitan area and the Rocky Mountain region in general.

GARDEN SHOW HOURS

Friday, May 16—12 noon to 10 p.m.

Saturday, May 17—10 a.m. to 10 p.m.

Plant Auction—7 p.m. to 8 p.m.

Sunday, May 18—12 noon to 10 p.m.

Plant Auction—3 p.m.

PATRICK J. GALLAVAN *Editor* MRS. HELEN FOWLER *Librarian*

MELANIE BROWN, *Asst. Editor and Librarian*

MR. AND MRS. EDWARD J. VINCENT, *Custodians*

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MEMO

Calendar of Events

"Fun with Flowers" — A lecture and demonstration is followed by the making of arrangements. Each person brings containers, mechanics, and material. The workshops are open to everyone. Due to popular demand the workshops will be held each month at the following times and places:

Workshop No. 1 — 1422 Kenton, Aurora, Second Thursday, 9:30 a.m. Chairman: Mrs. Fred Harper, 270 Jersey, Denver.

Workshop No. 2 — Lakeside Denver Dry Goods, 44th & Harlan, Denver, First Tuesday, 10:00 a.m. Chairman: Mrs. C. C. Buckbee, 4190 Depew, Denver.

Workshop No. 3 — Englewood State Bank, 180 East Hampden, Englewood, Second Wednesday, 10:00 a.m. Chairman: Mrs. H. E. Cluphf, 3888 South Grant, Englewood.

Workshop No. 4 — Arapahoe County Fair Grounds, W. Belleview and Windemere, Littleton. Third Tuesday, 10:00 a.m. Chairman: Mrs. John Sobilla, 386 North Windemere.

May 14 — Organic Garden Club meets the second Wednesday of each month, 8:00 p.m. Horticulture House.

May 14, 15 and 16—Flower Show School, Course V. 9:00 a.m. to 3 p.m., 1422 Kenton, Mrs. J. S. Rodwell, 1186 Racine, Denver 8, Colo., local chairman.

May 18-23 — National Council of State Garden Clubs annual convention, Seattle, Washington.

May 22-23—Crestmoor Park Garden Club flower show opens 2 p.m. Industrial Federal Savings Building, 200 University Blvd.; theme: Spring Magic. May 23, 9 a.m. to 8 p.m.

May 23—Sunshine Seeders flower show, Littleton Presbyterian Church. Open to public view at 2:30 p.m. to 8 p.m. Entries restricted to members except for junior entries.

May 24—Associated Garden Clubs of Pueblo flower show.

May 24-25 — Grand Junction Garden Club flower show, 4 p.m. to 10 p.m. May 25, 9 a.m. to 6 p.m.

May 31—Iris Society flower show. Museum of Natural History. Open to public view from 12 noon to 4 p.m.

June 3 — Mountain View Garden Club flower show, Denver Museum of Natural History, 1 p.m. to 8:30 p.m.; theme: The Essence of Spring.

June 4—Botany Club meets the first Wednesday of each month, 7:30 p.m., Horticulture House.

June 7—Home Garden Club flower show, Denver Museum of Natural History, City Park, 12 noon to closing time; theme: Flowers and Feathers.

June 12 — Denver Rose Society meets second Thursday of each month, City & County Bldg., rm. 100, 8 p.m.

June 22 — Denver Rose Societies Annual Rose Show, U. S. National Bank, Mile Hi Center. Open to public 2 p.m. to 5 p.m.

GARDEN SHOW SPONSORS

The Colorado Forestry and Horticulture Association

A product of the war years, the Colorado Forestry and Horticulture Association came into being in 1944 when two existing organizations with similar objectives merged. These two groups, the Colorado Forestry Association and the Denver Society of Ornamental Horticulture, had served the state and city for many years in the fields of forestry, conservation, and gardening. Population growth, the victory garden movement, and lack of correct and helpful garden information prompted the merger.

The job cut out for this infant non-profit organization was huge but not impossible. Its founders, a small but wise group, outlined the objectives at an early meeting, then with determination worked toward their goals. A major goal was to collect and give out accurate information in the above mentioned fields. This in turn required some kind of bulletin or publication. The Green Thumb was born. As the official magazine of the Association, it has served gardeners for 14 years. But the need for more factual data the forming of a botanical garden on possible plants for this area and committee. Through persistence this committee convinced the city of Denver that a botanic garden is a practical necessity and in 1953 this idea became a reality.

The Association has also grown in other areas. A permanent headquarters, Horticulture House, was established at 1355 Bannock, along with a fine library on all phases of gardening. Here, a full time horticulturist and a secretary help members and the public. In addition, talks and assistance to garden clubs and other interested groups are given. Active committees promote parks and roadside landscaping for the state and the people of Colorado. Thus, a dynamic organization continues to grow and expand as goals are reached and new ones formed. Membership is open and committees welcome new members and new ideas.



The Object of Rockwork. The rocks must be arranged in a natural manner, avoiding all regularity and appearance of formal art, but placing them sometimes in groups of half a dozen together, overhanging each other, and sometimes half bedded in the soil, and a little distance apart. There are no rules to be given for such operations, but the study of natural groups, of a character similar to that which we wish to produce, will afford sufficient hints if the artist is ingenious and has a perception of the natural beauty which he desires to imitate. *From Downing's Landscape Gardening and Rural Architecture, 1865.*

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The Botanical Gardens Foundation

By ROBERT L. WOERNER, *Director*

The Botanical Gardens Foundation of Denver, Inc. was organized February 27, 1951 as a nonprofit corporation for the promotion and establishment of botanical gardens.

For many years interested individuals realized that Denver should have a botanic garden, and tried to promote the idea. Through the foresight of the city administration a botanic garden in Denver became a reality.

An agreement was entered into between the City and County of Denver and the Botanical Gardens Foundation and an area at the east end of City Park near the Denver Museum of Natural History was set aside. The Foundation was designated as the agency to plan, develop, and administer botanic gardens here and in other areas.

Through the good offices of the Colorado Forestry and Horticulture Association, funds were donated to the Foundation to cover the cost of a master plan for the garden, prepared by Mr. S. R. DeBoer. Plantings were begun in the garden in 1953. Additions to the plant collections have been made each year until there are nearly 1000 species and varieties of plants in the Botanic Garden at City Park.

This year the Foundation received permission to begin the development of an herbaceous unit for the Botanic Gardens on York Street adjacent to Cheesman Park. A generous offer was made which will enable the Foundation to provide suitable headquarters for the Botanic Gardens at this new site. Plans for the building include adequate space for the Colorado Forestry and Horticulture Association and the offices of the Colorado Federation of Garden Clubs.

An additional building will house an auditorium and classrooms for meetings, shows, classes, and all types of horticultural activities. Educational programs will be presented by both the Botanic Gardens and the Horticulture Association. Gardeners from Denver and throughout the state will have the benefit of a fine horticultural library and herbarium, organized classes, demonstrations and lectures, and outdoor gardens displaying thousands of garden plants.

Since city funds for the development of this new unit of the Botanic Gardens are limited, private contributions will be necessary. Proceeds from the Garden Show and Fair will be used for those purposes which will be of direct benefit to the clubs and individuals attending or participating in the Fair. Funds will be needed for chairs, tables, audio-visual equipment, herbarium cases, library supplies, and other items to make the headquarters building and auditorium one of the finest horticultural centers in the country.

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Kenneth G. Wilmore, *President*
Colorado Forestry
& Horticulture Assoc.



Kenneth W. Wilmore has a flair for conducting a meeting smoothly and this is no mean ability. Business matters at the Board meetings of the Colorado Forestry and Horticulture Association are always handled with dispatch but still in a congenial atmosphere.

Perhaps that is why Kenny has held just about every post there is in the American Legion. For two years he was American Post Commander, District Area Commander for one year, and president of the Path Commanders Club.

He was a journalism major at Denver University and served four years in the Navy Air Force in World War II. The Maritime Service also claimed him. He loves fishing and hunting, especially on the Western Slope around Gunnison and Steamboat Springs. Kenny and his lovely wife Helen have a son, Denny, who loves sports as much as his father. A fourth member and mascot of the family is George, an English bull dog. Kenny also belongs to the South Denver University Hills Civic Association, the Optimist Club, and has been on the Educational and Street and Shade Tree committees of Horticulture House. And last but not least, he is a nurseryman, helping his father run well-known Green Bowers Nursery on East Exposition Avenue.

Lawrence A. Long, *President*
Denver Botanical
Gardens Foundation



Mr. Lawrence A. Long, Denver attorney, is president of the Botanical Gardens Foundation of Denver, Incorporated. He was elected to membership on the board of trustees of the Foundation in February of 1957.

Mr. Long is a Southerner by birth, a native of Virginia. He attended the University of Alabama where he received his Bachelor of Arts and Bachelor of Law degrees.

During World War II he served in the European Theater. He held the rank of Lieutenant Colonel in the Army. After completing his military service he came to Denver and established a law practice here. His office is located in the Denver Club Building.

Mr. Long is a member of the Denver Athletic Club, the University Club, the Chamber of Commerce, and a number of other organizations. He is National President of Alpha Tau Omega Fraternity and has been called upon to attend numerous fraternity functions throughout the country. Mr. Long and his wife, Elizabeth, are the proud parents of two girls and three boys ranging in age from seven to sixteen. The Longs reside at 2109 East Ninth Avenue in Denver.

Mrs. E. H. Honnen, *Garden Show and Fair Chairman*



A worthwhile endeavor needs a good leader for success. This requires a pace-setter, and the 1958 Garden Fair Committee has one, par excellence, in Mrs. E. H. Honnen. Her personality has many facets: warmth, spontaneity, leadership —all projected in a forthright manner which imbues her co-workers with the same "work and win" confidence.

Born in Denver, Mary Eppich Honnen attended Denver Public Schools, then Colorado College, where she affiliated with Delta Gamma Sorority and also met her future husband, Mr. E. H. Honnen, now owner of Caterpillar Tractor Co. Her early interest in dancing took her to New York to study ballet. Later, marriage and an interest in civic affairs combined for a lively career. Her home and raising a daughter, Mary Louise, now Mrs. Russell Tutt, and two sons, Robert Earle and Edward Peter, both married and with families of their own, balanced the scale on the domestic side. Junior League activity, which included helping to run the Junior League Nutrition Camp, and a keen interest in helping to beautify our area balanced the civic-minded side. Her interest in flowers led to her election as President of the Colorado Springs Garden Club and later to the same post in the Denver Garden Club.

The foregoing barely scratches the surface, but it was logical that Mrs. Honnen be chosen as Chairman of the 1958 Garden Show and Fair Committee—her achievement as chairman in 1957 was so great!

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Patrick J. Gallavan, *Co-Chairman, Garden Show & Fair*

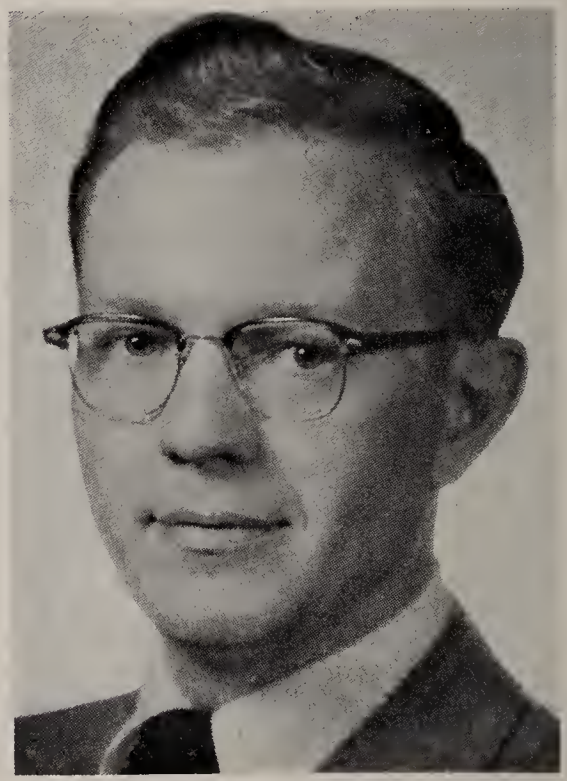


Pat is a native Coloradan from Durango, starting point for the only narrow gauge passenger train still running—Denver and Rio Grand Western's *The Silverton* which goes through Rio de Las Animas canyon to Silverton, Colorado. Mesa Verde isn't far away either. Here, anything growing is a precious commodity and perhaps this is the clue to Pat's vocation and avocation—trees.

A graduate of Denver University with a B.A. and M.A. in botany, Pat has done research in the control of fire blight, chlorosis (an iron deficiency in plants), and the identification of a new disease in birch trees. He is active in Denver's Rose Society, the Men's Garden Club, Swingle Study Group, Garden Writers of America, the American Horticultural Council, and has a radio and a TV program. These are all extra curricular activities, of course, for Pat's real job is executive director of Horticulture House and editor of The Green Thumb. Each could easily be a full-time occupation.

Along with the above, Pat lectures to garden clubs, serves on such committees as the Governor's Committee on Parks and Recreation, the Street and Shade Tree committee of the Association, and still manages to landscape his own yard, and be a scout leader. Pat and his wife Esther and their three children, Gregg, Claudia and Gay Lynn have a home in one of the new sections of Denver where neighbors can see for themselves that Pat's horticultural advice is not just theory.

Robert L. Woerner, *Co-Chairman, Garden Show and Fair*



So much botanical and horticultural knowledge has been amassed, developed, and disseminated by the Director of the Denver Botanical Gardens, Robert L. Woerner, since he graduated from the University of Syracuse in 1949, that we feel for-

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tunate to have him working for the success of the 1958 Garden Show and Fair.

Bob is married and the father of two children. His background in horticulture and landscape engineering was valuable to the Parks Department of the City of Yakima, Washington. Later, in Spokane, he became Assistant Superintendent of Parks and eventually Director of the Finch Arboretum at Spokane. While there, he was chairman of the education committee of the Western Chapter of the National Shade Tree Conference.

Bob has done an outstanding job with the Denver Botanical Gardens and has written many excellent articles on their purpose and development. He has published a diagram of the Gardens with explanatory material regarding the types and quantities of the species which have been planted and has also brought this valuable information by lectures to many local garden clubs.

Bob has a great future in his chosen field for he comprises versatility, energy and a ready wit along with his ability as a botanist. All of these attributes have been of tremendous value in public relations insofar as helping the people of Denver to better understand and appreciate the Denver Botanical Gardens.



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Profile, Sam L. Huddleston, *Chairman Garden Show Planning*



I can express the Profile of this landscape architect, and I believe secure a chorus of "yeahs" from my brethren, in one word, *frustrated*. To put it mildly, this is not the day of the landscape architect. This is the day of *industry*. I was brought up with the idea that industry consisted of clanking machinery on an assembly line. Now it is applied to Colorado Carnations, Tourists, and in Texas and California where they do things big, to the landscape! This is one reason I am happy to be in Colorado. It took me 35 years to find the place, and after 9 on this scene where things ARE BIG I remain glad I found it.

Anyway, though most of us are frustrated, we are philosophical types and are not particularly bitter since we know that what has been aptly termed the "disease of civilization," this being the root of our frustration, will be wiped off the face of the earth by the next ice age, if not sooner by more sudden methods.

What irks us most is that even in the face of known better methods, John Q. Citizen screams on the one hand for a pleasant life while on the other persists in fouling his own nest, a philosophy about as perverse as the prohibitionist yelling for the establishment of more and better breweries.

Look at the record. In less than the span of one lifetime we have seen the founding and building of many cities, Denver included. Now what do we hear of the downtown and heart of this great work of man? It is "blighted," a more acceptable term than "diseased." Reconstruction and rejuvenation is the cry now of merchants and politicians. Along what lines is this to take place? "We will make of it a great, pleasant shopping mall with parks, trees, shrubbery and the tinkle of fountains. We will give it back to the pedestrian." In other words it seems, probably too late, that these people who built this great mass of brick, concrete, steel and asphalt, and who also cut out the parks, trees, and other organic elements, have finally come up with this great solution. They have made the amazing discovery that man cannot live by bread alone!

It is not only the hearts of cities. This disease of ours is further evidenced in urban renewal of ancient (50 year old) residential areas, in highway renewal (25 years old), by the colossal interstate highway system. On these fronts our fight against the disease is a delaying action. On another front, the new one and our greatest boom of all time in commerce, progress and industry, in urban sprawl, in barrack and bedroom towns, in the destruction of wildlife habitat, in the overgrazing of grasslands and forests, in

dams in mountain canyons, we continue on our merry way to foster and even coddle the monster. How many years on this front before 'renewal' is the cry?

There are men, landscape architects, none of them centenarians, who have seen our civilization make this full circle. It was my privilege to take over the office of Irvin McCrary who started his practice in Denver in 1913. The files that I acquired from him are full of plans and reports advocating and delineating in detail many of the developments now proposed to rejuvenate the downtown and slum areas. This was in the period of 1920 to 1940. It wasn't too late then. As is obvious today, little if any of this foresight was ever practiced.

Probably at that time the reaction of merchants and politicians to this landscape architect, this purveyor of foresight, was the same as today—fantastic! unrealistic! dreams!

This is frustration.

For this state of affairs, the landcape architect is as much or more to blame than the merchant, the politician, the industrialist, and the citizen. He has been unable to show the public what he can do. He has not trained enough people in the profession.

The landscape architect is basically a planner of land, of the proper use of land, whether on a residential lot or a region. It is rather obvious that certain lands are usable for only certain purposes. Residents of Harvard Gulch in South Denver found to their considerable expense that flood plain is hardly suitable for residential use. The obvious use for such lands is open—in park, farm, forest, or similar wild or semi-wild state. Other lands are most suitable for industry, for commerce, for agriculture, for wildlife and watershed. This is a complicated thing, hard to sell to the individual since it is as foreign to his general knowledge as Einstein's theory. The delineation of lands, in their proper proportion and location for the highest possible use is the landscape architect's business.

Our civilization is in trouble because development and improvement of land has not followed this basic criterion. But humanity does not want it this way. If it did, neither I nor any of my compatriots would be in business today. Humanity wants a pleasant place to live, a pleasant place to work, and a pleasant place to play. The landscape architect can provide this environment with the necessary efficiency for commerce and industry and within practical, economic bounds. However, he has been unable to find the key that will let him make this contribution to our culture.

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THE IMPORTANCE OF GOOD DESIGN

By DONALD O. ROOS,
Rocky Mountain Association of Landscape Architects

Some of the types of landscape design which are found today are: the garden, the private estate, the land subdivision or development of land for residential use, the grounds for country clubs, country hotels, colleges, institutions, hospitals, schools, and other public or semi-public buildings or building groups, exposition grounds, zoological parks and botanical gardens, cemeteries, playgrounds, the smaller in-town parks, and the larger country parks on the outskirts of our cities. Also included would be all of these elements in the overall physical organization of the city, and the roadside park and national park facilities. Of these, the four principle areas a landscape architect has most to do with are domestic landscape architecture, institutional landscape architecture, park design, and more recently, city planning.

Throughout the United States a lowering of private incomes and heavy government taxes have cut into domestic landscape work. Since World War I the difficulty and expense of employing labor to maintain home grounds, and the general use of automobiles have affected considerably the design of modern home surroundings. The result has been smaller properties more intensely used. With less space therefore, landscape architects have had to develop rhythmic designs ending in focal or emphasis points. It matters not whether the design be formal or informal, there is still a need for such focal points.

In recent years the tendency has been toward multiple dwellings with conveniences shared by all. Here it is important to have an enclosed or partially enclosed court or garden area for the enjoyment of everyone in the unit.

A small group of homes planned in relation one to another is considered a community or regional design. Usually, however, it includes a fairly large geographical area, with more than one nucleus or civic center. Many benefits are derived from this group planning—among them, community pride and neighborliness which have been disappearing from the American scene.

Since the beginning of the 20th century, institutional landscape architecture has grown instead of being modified as domestic landscape architecture has. Government agencies and spending have had a marked influence on institutional landscape architecture of schools, charitable and penal institutions, and government housing. Whatever is considered best for man for his cultural growth, this must be the governing principle in the design and plan of such facilities. The goal is to design an area that provides the utmost in pleasure, recreation, and beauty.

Public parks in the United States are for the people. Pleasure parks, such as Central Park in New York City, are an integral part of a city and are designed to give quiet pastoral beauty in the midst of an urban environment.

Present tendency in park development, however, is toward areas designed primarily for exercise and athletics. The element of beauty is incidental. The pleasure park is being superseded by parkways or freeways which are no longer lim-

ited to the municipal area but extend for many miles through territory selected for possible aesthetic development. This land is usually less desirable for home building or commercial development.

The most recent and broadest field of professional activity in which the landscape architect finds himself is city planning. In this activity he works with engineers, architects, sociologists, economists, and lawyers. City planning is limited only by the skill of these men. It is therefore important that each appreciate the point of view of the other and that all should have a sound fundamental picture of the field of city planning as a whole.

Primarily, the purpose of a city is to provide suitable living and working accommodations. Naturally, then, the needs of the people should dominate the ultimate plan. The city's physical order and social order cannot be separated but must develop hand-in-hand. A landscape architect's part in city planning is therefore quite significant. He develops the physical order which in turn influences the social order of the city itself.

Good landscape design is important, then, because it models land and landscape for human use. It is a profession that strives to improve our environment, and it is a field in which there is no such thing as a finished job.

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Truly "gardens are for people." Especially in our western "Sunshine States" should we plan gardens to live in. California has done so for many years, and actually, we have at least as many days in the year when it is pleasant to be outdoors as they have.

We must learn those things that go to make up a garden which we would naturally *want* to live in and then design ours along those lines.

Following are noted and illustrated some of the most important features that would go to make up a livable garden.

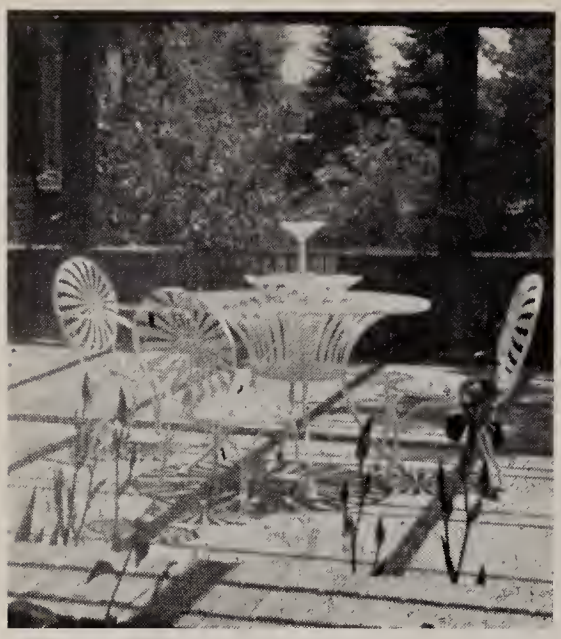
o Live In

By GEORGE W. KELLY



Good Gardens must be *comfortable*. They must have protection from extreme sun and heat, from cold, wind, and noise, from distracting views and traffic, and they must have good views framed and emphasized.





Good Gardens must be *useful.* Provision should be made for eating, resting, entertaining, working at hobbies, and for a children's playground. They must be planned for the preferences of the family that will use them.













Good Gardens must be *convenient*. There should be easy and gradual access from the inside rooms to the outside rooms of corresponding uses. The house and garden should be properly designed to fit together.



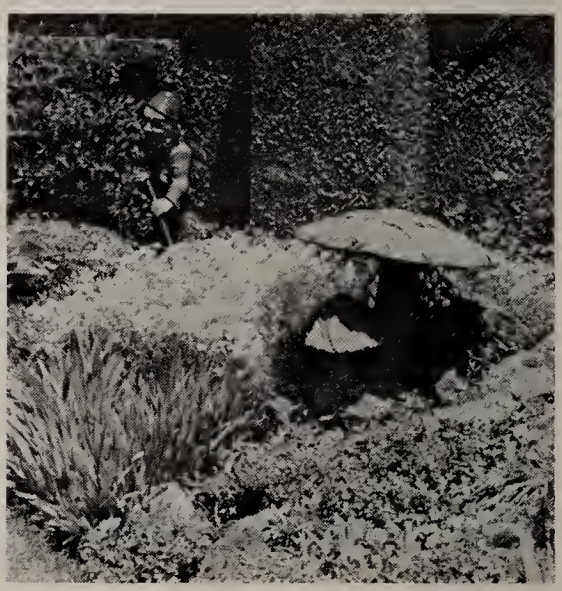


Good Gardens must be *private*. Walls, fences, lattice, and living screens of shrubs, trees, and vines need to be planned to give necessary enclosure and a feeling of privacy.



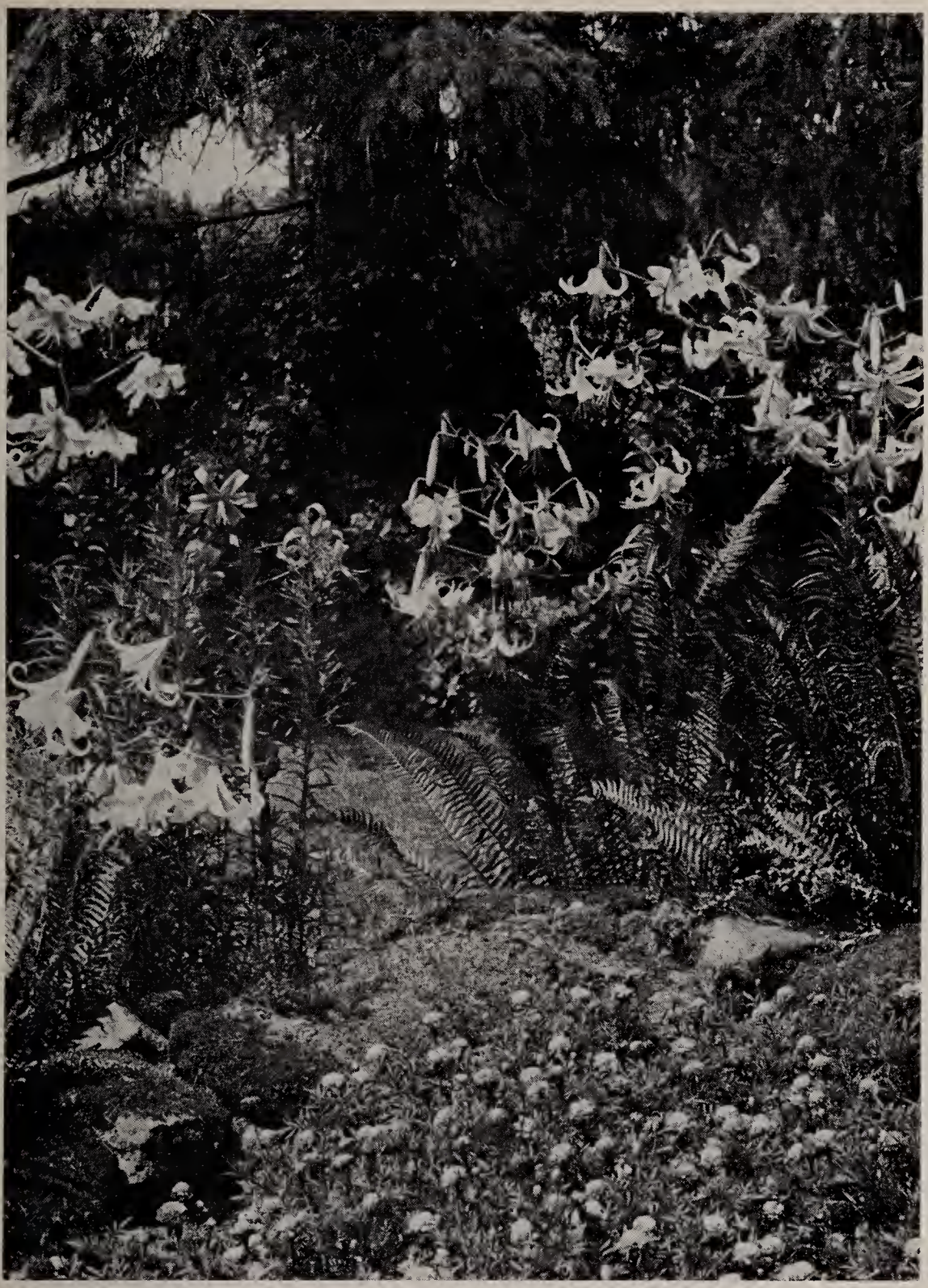
Good Gardens must be *interesting*. This can be done by the careful planning of stone, statuary, woodwork, walls, paving, garden furniture, and changes in ground level.











Good Gardens must be *beautiful.* Beautiful plant material is probably the first consideration and can include bright flowers of many kinds, green foliage of varying hues and textures, with interesting fruit, bark, and form. Beauty can also be obtained through the controlled use of inanimate materials such as terra-cotta, brick, tile, and plastics. Color combinations carefully worked out with definite planning for interest all the year through are important.

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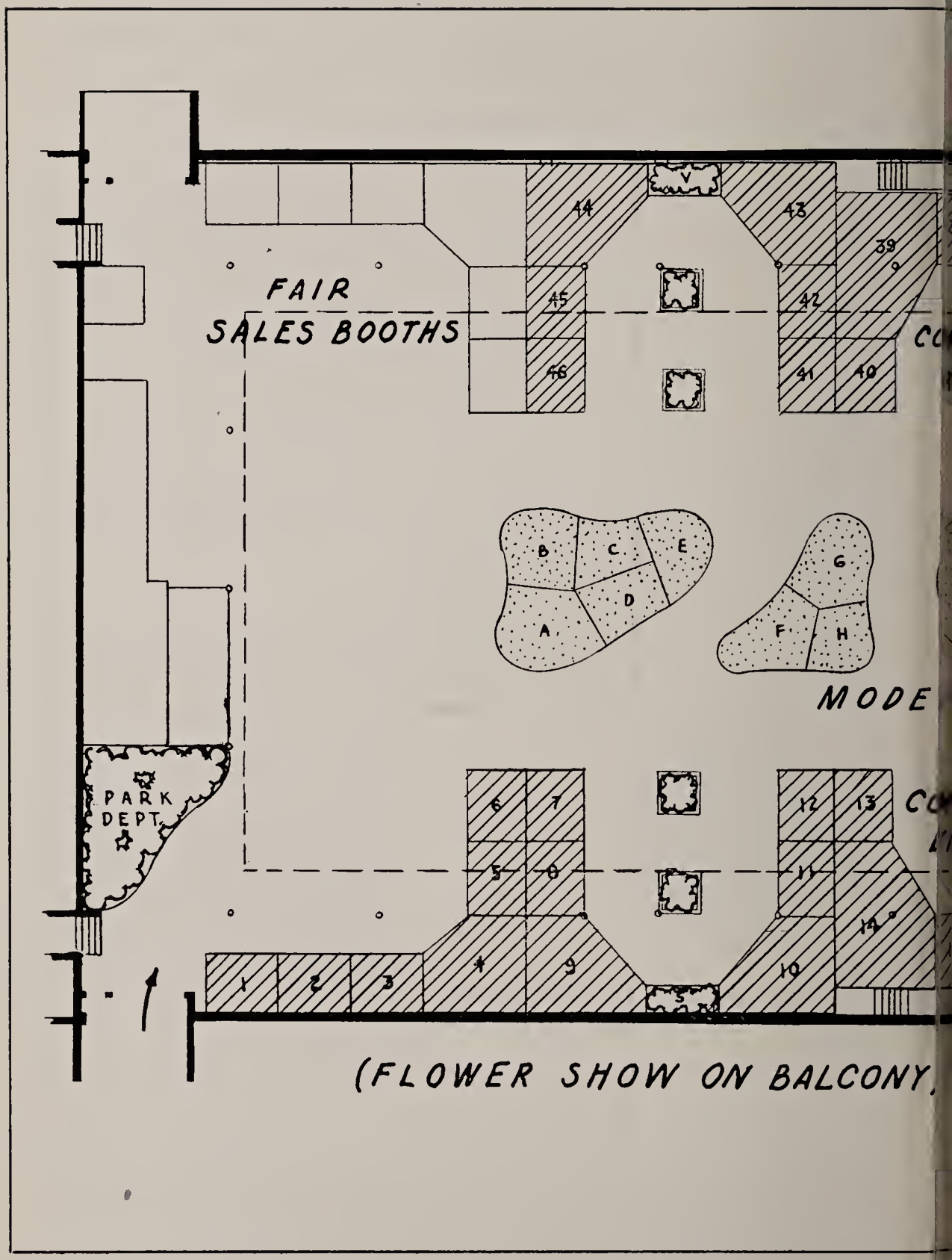
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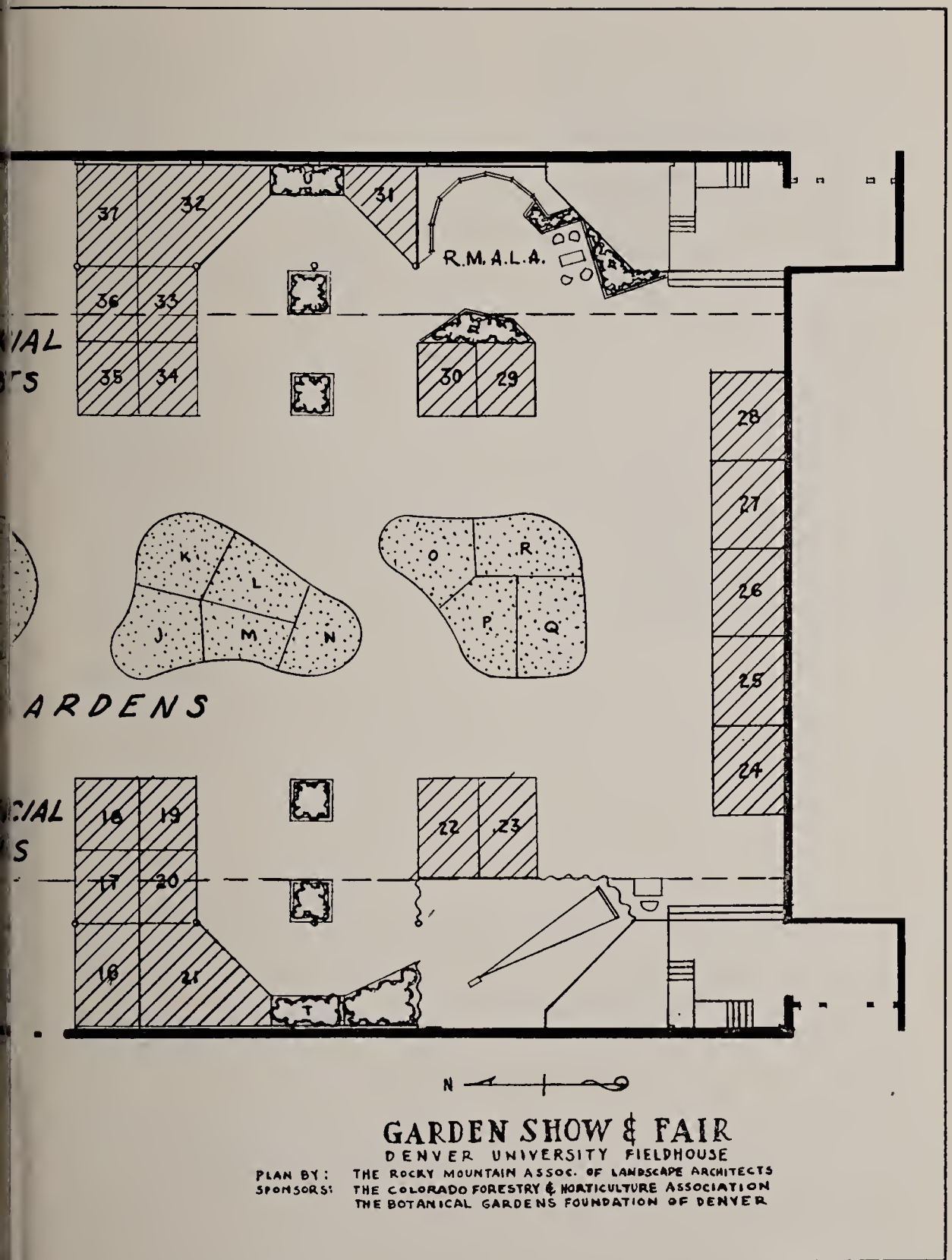
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Mrs. John R. Nickels, *Chairman Garden Plots*



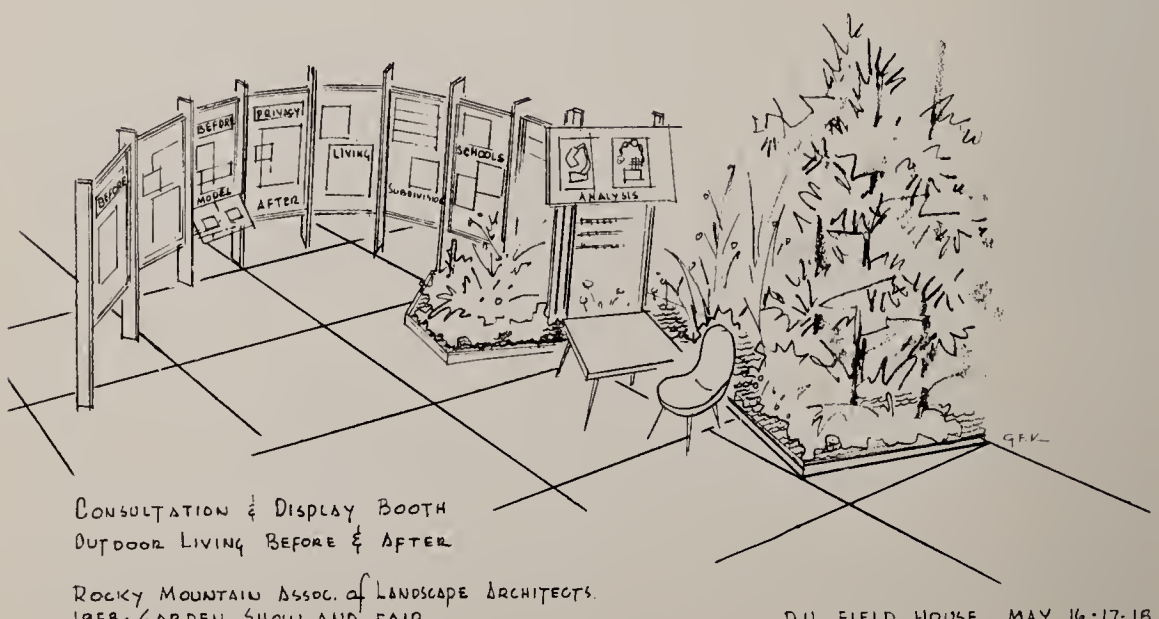
A member of Colorado Forestry and Horticulture Association since 1947, Mrs. John R. Nickels serves and has served horticultural organizations in many capacities.

Currently, she is president of the Colorado Federation of Garden Clubs, is an amateur nationally-accredited flower show judge, a member of the Floral Art Study Club and the Friendly Gardeners, as well as an honorary member of the Miraflores Garden club of Littleton. She is also a member of the American Iris Society and the National Audubon Society.

Residing at 133 N. Sherman Avenue she was proclaimed Littleton, Colorado's most valuable citizen for 1957 for her numerous civic deeds. In 1949 she organized and federated the Friendly Gardeners and served as president for two years.

She has served the Colorado Federation as first, second and third vice-president and as State Auditor.

Born in Wisconsin and reared on a farm in North Dakota she developed an early appreciation for nature and growing things.





OUTDOOR LIVING - BEFORE & AFTER
1958 GARDEN SHOW AND FAIR
MAY 16-17-18 D.U. FIELD HOUSE

WHY NOT A FOCAL POINT IN THE GARDEN

By JULIA H. ANDREWS,
Rocky Mountain Assoc. of Landscape Architects

As I drive around Denver and constantly look at the front yards, side yards, and back yards of its homes, I get the idea Denver's gardeners feel an inanimate object of plaster or stone is necessary to make a garden complete. This idea is influenced by the designs of the grand estates of the twenties. Many of them had a classical sculpture to terminate a vista which was a direct copy of designs in public parks and kings' estates in Europe. These formal designs were conceived in a grand manner to reflect the monarch's "grand" reign. Italian masters of the Renaissance were the original exponents of this style. Those who have visited the public gardens laid out by these men come home greatly impressed by grand arcades focusing on a piece of marble sculpture. We came home remembering the sculpture and applying the term focal point. "Oh, I must have a focal point in my garden. That is just the touch it needs." And so we went out to buy a sundial on a pedestal to place in front of the perennial border.

But let us look back at the focal point of the Italian garden a second time. The first time it escaped our notice that the sculpture our eyes

were focused on so dramatically was really only one part of a unit, each part directly dependent on every other part for the complete picture. White branches of the sycamore trees caught up the color to unify the scene, the dark color and stately repeat of the cypress trees contrasted and framed the soft sound of falling water. The crunch of the tan gravel underfoot, the laughter of unseen children, and the feel of the hot sun all contributed to the moment of beauty when our eyes were focused on the marble figure.

Garden Design has evolved from this European concept. But garden design should reflect our way of life. Grandiose sculpture and gushing fountains are not suitable for our city yards. When you remove the sculpture from its integrated setting it becomes a misfit. When you compress a grand scheme you lose an essential component of its beauty—the scale. As misfits they annoy rather than give pleasure.

Focal points are not added. They are carefully planned and completely integrated. So the small city garden in its entirety becomes a focal point. Carefully planning the colors, the textures of the leaves, the forms of the individual plants to make the parts fuse together into a closely integrated unit can make a whole group or border into a focal point.

The architectural object that is haphazardly added, after seeing one that is an integrated part of a lovely garden, cannot give the same satisfaction. It will only mar the beauty of your garden.

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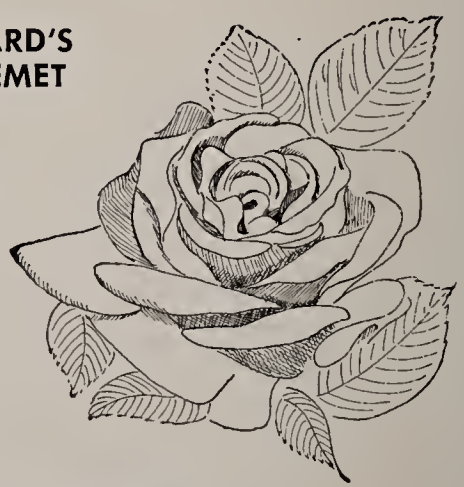
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Mrs. Charles O. Parker,

Chairman Flower Show



Ohio born Florence Lieser Parker graduated from North Denver High School and Barnes Commercial School, after which she was private secretary to the Vice President of the Mountain States Telephone & Telegraph Company. After her marriage to Charles O. Parker, a graduate of the Colorado School of Mines, she attended Denver University where she was active in all phases of campus life, was elected to six honorary societies, and held numerous offices. She majored in Chemical Engineering, Education, and Romance Languages and studied art at Chappell House. After graduation she became Province President of her sorority. During World War II she worked as a chemist with her husband in his laboratory.

She has two children; a son, a graduate of Colorado School of Mines, who is taking a degree this May from Harvard Graduate School of Business Administration; and a daughter, a graduate of Colorado University.

She lives in Boulder County, between Broomfield and Lafayette. She has been President of the Lafayette Library Board and belongs to other local organizations.

She has been a member of The Home Garden Club for many years and has held most of its offices. Some of her articles have been printed in The Green Thumb.

Mrs. J. V. Petersen,

Co-Chairman Flower Show



Bernice Petersen is so quiet and modest that few people realize what a versatile person she is. She's a graduate in journalism from the University of Colorado, was a reporter for the Englewood Herald newspaper, and has been a ghost

writer for numerous articles in The Green Thumb. "Pete" is on our Editorial Board and used to help out at Horticulture House by working several days a week answering the phone and doing other work. Her article "Rocks On Our Knob" in the 1957 March issue of The Green Thumb humorously describes what most of us would find little humor in—the back breaking work of building a rock garden—and not with just pebbles placed here and there! This garden is mentioned in George Kelly's new book GOOD GARDENS IN THE SUNSHINE STATES. She is also one of our reliable stand-bys for "experting" (identifying plants for visitors) on our summer Look and Learn Garden Tours. She is a member of the Home Garden Club, Denver's oldest, and is one of its vice presidents. Her adeptness in gardening she modestly attributes to The Green Thumb. (Bless you, Pete, we're glad someone takes advantage of all the good information in our magazine.)

WHY FLOWER SHOWS?

By BERNICE PETERSEN

Fascinating, fun, and functional are just three of the "whys" for flower shows in these days of trials and jubilations. Like music, art, and drama they offer inspiration, beauty, and pleasure to the on-lookers, novice gardeners, and experienced plant hobbyists. They stimulate and encourage interest in our whole bloomin' world—annuals, perennials, flowering shrubs, and flowering trees, that is.

"Where the Columbines grow," the first annual flower show sponsored by the Colorado Forestry and Horticulture Association and the Botanical Gardens Foundation of Denver, Inc., will easily confirm the answer to the question, "Why Flower Shows?"

Fascinating will be the displays of flower arrangements interpreting such familiar titles as "Snowmass," "Timberline," "Half Moon Creek," "Silverton," "Grand Mesa," "Tin Cup," and "Mesita." Professional florists will express their ingenuity with exhibits in "Bridal Veil Falls," "Silver Heels," and "Camp Fancy." Here, the exciting creativeness of flower arranging may be enjoyed for its sparkling originality or carefully analyzed for the basic rules concerning design, line, balance, harmony and texture.

The horticultural display of newer varieties plus reliable favorites of tulips, lilacs, flowering trees, and shrubs should offer encouragement and help for hundreds of newcomers and novice gardeners attempting to understand the elements and fundamentals of successful gardening in this area.

Fascinating as well as functional are the conservation and educational exhibits. Displayed publicly for the first time are some of the late Mrs. Emma Ervin's original water colors illustrating wildflowers which will be extinct unless preserved by conscientious conservationists. This conservation list designed to protect Colorado native plant life was adopted by the Colorado Federation of Garden Clubs in September, 1955.

Another first — plastic lamp shades, place mats, and miscellaneous plastic items utilizing pressed plant material will be shown in various stages of completion as an educational display. Although these intriguing articles have been

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popular commercially for some time, members of Home Garden Club of Denver are sharing their perfected techniques easily mastered by amateurs aged 8 to 80. Fascinating, fun, and functional!

As previously indicated, the horticulture and arrangement divisions offer observers the opportunity to appreciate and recognize plants for their intrinsic beauty and for their adaptability for use in exterior and interior decorating. In addition they offer exhibitors the fun of stimulating competition, the fun of gaining a better understanding of what constitutes a prize-winning specimen or flower arrangement, and the satisfaction of contributing toward higher standards of horticulture in this region. Judged by accredited flower show judges, "Where the Columbines Grow" offers any flower-happy Coloradan the opportunity to win cherished ribbons in the most exciting horticultural event ever staged here. Schedules for interested exhibitors are available by calling or writing Horticulture House.

Representatives of the Colorado Federation of Garden Clubs and members of numerous other horticultural groups seek your cooperation and enthusiastic participation as an individual to make "Where the Columbines Grow" not only fascinating, fun and functional but FABULOUS!

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Lewis D. Hammer, *Commercial Booth Chairman*



"Lew," as his many friends know him, is a transplanted Minnesotan. A family man, he and his lovely wife Suzie have three girls. Lew is an energetic and amiable person as well as a qualified horticulturist with a degree from the University of Minnesota. In college he ran a garden maintenance company in Minneapolis and after graduation served a hitch in the Air Force. One of his military assignments brought him to Lowry Air Force Base. He liked this country so well he decided to return to Denver after the Korean war.

In 1954, Lew joined the Denver County Agents staff for two years as Assistant County Agent. He then went into business for himself, specializing in garden construction, patios, walls, rock gardens, and fences. Lew has a knack with plant materials. In the past two years he has built some of the most outstanding rock gardens in Denver. Besides running his own business, he is Commercial Exhibit Manager for the National Western Stock Show. He is also active in the Colorado Forestry and Horticulture Association and has been on its education and editorial committees. His experience with commercial exhibits makes Lew a valuable member of the Garden Fair team.

* * *

There is a popular belief in some parts of the southern United States that *ash leaves* are so offensive to rattlesnakes that the latter are never found on land where the ash grows. Hunters are said sometimes to stuff their boots with ash leaves as a preventive of rattlesnake bites.—M.W.P.



MARSOLEK'S GARDEN & FLOWER CENTER

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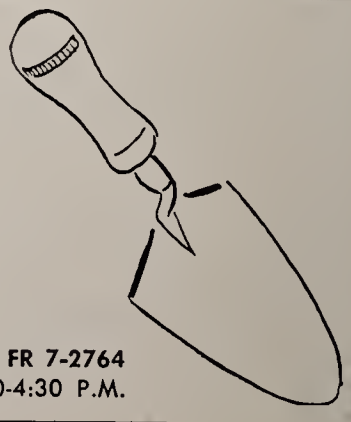
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FOR GADGET-MINDED GARDENERS

By HERBERT C. GUNDELL
Denver County Agricultural Agent

What fun gardening can be with all the new gadgets each year. If you don't believe me, just go to your nearest garden supply center and take a good look around. You will find more new items than you ever dreamed of, all the way from knee pads, to garden gloves, to garden hats. Each year brings a flurry of new, interesting items for gardeners. One of the many new things offered this year for the first time is a little in-the-row plastic greenhouse. This actually replaces the old-fashioned hot cap that we used to place over our tomato plants when we were ashamed of the fact that they were put out too soon. Now we can do it in a very stylish way by simply building a small greenhouse over them and presto! we have transformed a little bit of earliness into an attractive garden spectacle.

Speaking of keeping your lawns where they belong, there are a number of new grass guards on the market. Some of them are aluminum, some steel, and some even plastic. A good sharp spade will cut through the plastic but it sounds like a good idea for somebody in a situation where metal might be impossible to use.

As we transplant perennials and divide them, there's no longer any worry about starting them out in the open ground. Now we have little "jiffy pots." All they are, are little pots of compressed peat moss. Plant the little seedlings in them and let them grow for awhile; then set them outside and forget about taking them out of the pots. Simply put the pot in the ground and everything continues beautifully.

Here is a time saver for many. Aluminum trellises, instead of wooden ones that need paint every other year. If you like white, paint the aluminum and it will look just as pretty without having to be redone all the time. Metal holds enamel a little better than wood.

Gibberellic acid? You've heard about it. It's a new chemical that will make everything grow twice as fast as it is supposed to. Scientists haven't quite decided which plants respond best to it, but in the meantime, you can buy it in an aerosol bomb all ready to use. One container has enough for over 150 treatments. Why not try a little experimenting on your own to find out what it will do to *your* garden.

There are also some new strawberries. Radiance, one of the finest ever produced in this area, is a hy-



LOCALLY GROWN PLANTS

Just about every tree, shrub, and evergreen sold by us this spring will be freshly dug from our own fields. No wonder they transplant easily, start growth quickly, winter perfectly. Try a few in comparison with shipped-in ones and see the difference. May is the ideal time to plant them, as well as our giant rose bushes, vines, and perennials.

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brid from the Cheyenne Experimental Station. It is particularly noted for its disease resistance, a factor of great value in this area. Ogallala is another new one just recently announced. This one is being introduced by nurserymen in Nebraska. It too, undoubtedly, has its ancestory up at the Cheyenne Horticultural Station. Ogallala is highly recommended by horticultural authorities in Nebraska and Wyoming.

And don't forget to feed your trees and shrubs! A root feeder that has a 36 inch spike so that you can get the moisture where it really belongs seems a very sensible garden tool and should be as familiar on your rack as the spade, rake, and hoe. Get one and use it. You will see the difference within a year's time.

And don't forget to buy some of the new vegetables and flowers for 1958. Enjoy some of the novelties; try them out and formulate your own opinion. Take them to the Garden Show and Fair and let everyone see the new things of 1958.

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Spread it now for fast, healthy growth and new lawn life! The REAL McCOY's pure manure base provides humus for better soil condition! Excess sand and moisture removed, weed seeds killed. Just $4.79, 50-lb. bag.



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Scott Wilmore, *Plant Materials Chairman*



Scott Wilmore could hardly help being a professional horticulturist, and a good one, for he is the son of W. W. Wilmore who was nationally known for prize dahlias from his Dahlia Farm, founded in 1886, at 44th and Wadsworth. In 1920 operations expanded to include other plant materials and the name was changed to what it is known by today—W. W. Wilmore Nurseries. Under his father's guidance Scott became an expert nurseryman and in 1932 he took charge of the nursery. Since then he and his wife, Ruth, have developed one of the finest nurseries in the west with a particularly good line of roses. Scott says his success is built on hard work, quality nursery stock, and modernization. As one dedicated to growing plants, Scott has given time and energy to help others enjoy good gardens. He is a steady and generous advertiser in The Green Thumb. He has been an enthusiastic member of the Board of Trustees of the Colorado Forestry and Horticulture Association for many years, always willing to help on its many projects and committees. Active in the American Association of Nurserymen for over 30 years, Scott is at present regional committeeman for that group. He is a top horticulturist whose popularity is shown by the quality and quantity of plant materials he has collected from the area nurserymen for this show.

The European Federation for the Protection of Water, founded last October, on the shores of Lake Constance under the presidency of Dr. Jaag (Switzerland), has expressed the hope that future generations would not accuse our age of having conquered atomic energy and lost the battle for water.

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Putting In Some Shrubs And Trees?

You can buy a packet of zinnia seeds for 15 cents, take 20 minutes to set them out, and get a spectacular return for your investment. You think the seeds are a good buy. On other occasions you might blow $5 on two dozen cut roses. They took only one season to grow and will be thrown out in ten days. Still, you don't feel cheated.

But what should you pay for a tree or a shrub?

Take a blue spruce 2 feet tall, for example. Is it worth $2 or $5 or $10? You might find it offered at all three prices. And whichever price you pay, you go away wondering whether you have bought a bargain or been rooked.

Almost everybody has that uncertain feeling about nursery stock prices. Deep down you know you are buying blind.

There is no simple, sure way, unfortunately, to become an expert on nursery stock over night. But you can stretch your landscaping dollars and save yourself some disappointments by knowing what to expect and what to be wary of.

No, It Isn't Hay

If you are like most people, you tend to think of the nursery business as a branch of farming. That is, you regard its products as inexpensive commodities produced 90% by nature and 10% by cheap labor. Furthermore, you tend to judge value by size. A dinky shrub, it seems obvious, just naturally could not be worth so much as a large one.

Yet both of these notions are misleading. Either could land you in a pitfall.

The nursery business is, in fact, a type of farming, but a very specialized kind. The good grade products sold by reputable nurserymen have been raised almost by hand. They have been painstakingly propagated, repeatedly culled, consistently pruned and fed, and probably transplanted several times while developing to a marketable stage. This process often takes several years. Hand labor is one of the biggest single costs.

That's why nursery-grown trees and shrubs cost a lot more than hay.

Of course, it takes more labor to grow some plants than others. This is where the inclination to relate price to size leads you astray. A yew 12 to 15 inches high costs three or four times as much as a forsythia 4 to 5 feet tall. The reason is that it took five to seven years of growth and care to produce the yew. The forsythia got its growth in two to three years.

Size can be misleading even between two plants of the same variety. A *Ligustrum lucidum* of 18 to 24 inches offered at 75 cents may be a poor buy if it is only two years from the cutting stage and consists of only two or three skinny branches. Another specimen may be a stocky four-year-old pruned back several times to make it dense and compact. At $3, such a plant would be a much better buy than the 75-cent item.

So the first principle of shrewd nursery-stock shopping is to shed the idea that the biggest plant you can get for the least money automatically is the best buy.

Plenty of Ways to Buy

The next step is to size up the sources of supply which are numerous.

There is the local nurseryman with his combination growing field

and sales office outside town just beyond the latest subdivision. Then there is the mail-order house that sells with lavish catalogs and delivers via mail or express. And there is the out-of-town firm that sends a salesman to your door, with offers of landscaping advice and an order book. There are amateur growers, too, gardening enthusiasts picking up a bit of side money from their hobby. Sometimes you encounter itinerant peddlers, hawking plants off the tail gate of a beat-up truck bearing out-of-state plates. All these, plus an array of retail outlets including supermarkets, department stores, hardware stores and "garden mart" sales lots.

Your problem, clearly, will be choosing a place to buy, not finding one.

You seek good quality specimens of the plants you want at reasonable prices. You also want to buy conveniently and confidently. You probably want some practical gardening counsel, too.

How well do the various suppliers meet these needs? And where might you expect to find the best buys?

LOCAL NURSERIES. Generally, these rate high on quality, convenience, reliability, and advice. They are convenient because they have permanent places of business, and usually they are reliable because they are permanent. They score high on quality for two reasons: Their stock is grown under prevailing local conditions, and you actually see what you are buying. And the person-to-person dealings between grower and buyer make the local nursery a logical source of sound, locally oriented advice.

The small local nursery's main shortcoming is likely to be the limited variety of stock available. The particular shrub you want most, simply may not be on hand, although readily available from other sources.

Prices at local nurseries are variable, fluctuating with the grower's knowledge of the market and his own costs. Some nurserymen are hazy on both points, so a shrewd shopper sometimes discovers genuine bargains. But there is no rule. You must shop around to find out whether a given price is high or low.

Local nurserymen often will do the planting for a small fee and guarantee the survival of the stock they plant.

MAIL-ORDER HOUSE. The convenience of buying by mail is unsurpassed; you can do it from a wheel chair. Prices are usually good, too, since mail-order houses often do a tremendous business at low unit costs. And the better houses sell many items that are hard to find elsewhere.

But their strong points end with that. They can offer no personal advice other than that printed in their catalogs and planting instructions. You don't see what you buy until after you pay. And your purchase may arrive at an awkward time for planting.

When you consider buying by mail, don't forget that mail-order concerns generally sell small-sized plants and frequently offer them only in quantity lots. Before you can compare mail prices with local prices, you must know what size of plant is offered and whether you can buy only as many as you can use.

Mail-order merchandise usually is shipped with bare roots, whereas locally obtained stock is dug with the roots intact and undisturbed in a ball of earth. Bare-root stock is satisfactory if it moves promptly in shipment and if it is planted immediately on delivery. But there is some danger of drying or other damage in transit. Balled plants are less

likely to be harmed and will establish themselves more quickly.

Many mail-order nurseries are paragons of reliability. But a few have been guilty of palming off culls and other inferior material at first-quality prices. Some have been caught mis-naming their goods. Such miscreants pop up regularly enough to warrant caution when buying by mail.

DOOR-TO-DOOR SALESMEN. This is a form of mail-order buying, for your order is handled and delivered by mail. The system has the same advantages and shortcomings that all mail-order distribution has.

An accomplished salesman, however, can persuade you to spend more than you might otherwise. He may write your order as a contract for both fall and spring delivery, two orders in one. Often a stiff cash penalty is imposed for backing out of part of the contract. So be sure to study the terms and understand what you are getting into.

Although these salesmen may represent themselves as expert landscape planners, they are not professional designers. Their designing skill, as well as their knowledge of local conditions, is likely to be skimpy.

Prices for nursery stock sold this way can be relatively high, too. Before you buy, compare with local prices.

AMATEUR GROWERS. These people are more hobbyists than businessmen. Prices they ask may have little relation to actual value or production cost. You may pick up an item you want from an amateur, but naturally your choice will be small. You will get a lot of free, friendly advice, too. Some of it may be helpful.

PEDDLERS. Of all nursery-stock sellers, these are the most haphazard and least reliable. Some are outright gyps. Cases have been reported of peddlers selling trees with "earth balls" that turned out to be burlap bags full of rocks and leaves masking sawed-off stumps. Others peddle half-dead stock discarded by reputable nurserymen.

But even the well-meaning peddler is no prize. Usually he sells plants collected in the woods. These are dubious bargains. Wild plants develop rambling roots and so are hard to transplant successfully; and they may be diseased. If you take a gamble on such stock, expect heavy losses.

RETAIL STORES. The packaged stock sold by hardware and department stores and on open-air sales lots is supplied in huge quantities by wholesale growers. That's why prices frequently are lower at nonnursery outlets than at retail nurseries.

You can't fill many of your landscaping needs this way, however. The goods are available for only short periods. Variety is scanty. And there is some danger that the merchandise has deteriorated in storage. The clerk who rings up the sale can't give you any worthwhile advice, either.

Take Note, Bargain Hunters

So you see, the homeowner who wants to make the best possible use of his landscaping dollars faces a confusing market. And if he is out to snap up some bargains, he'd better be wary.

Remember, this is one kind of shopping at which few consumers are expert. After all, can you look at a young plant and tell whether it will grow and flourish? For that matter, can you even tell for sure whether it is alive or dead? The most unpromising stick of bare-rooted stock may leap into glory two weeks after you stick it into the

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ground. And the lushest-looking shrub, bushy and burlapped, may be a sickly runt all its days.

The best rules to bear in mind are these: Be suspicious of spectacular bargains. Sellers know a lot more about their wares than most buyers do. If the price is strikingly below average, there must be a reason. Better look for it.

Since you cannot rely on your own expert judgment to protect you, there simply is no substitute for dealing with reputable parties. Whenever in doubt, favor the seller you have reason to trust.

If the price is fair and the stock appears to be good, go ahead and buy. Then the rest is up to you. Plant carefully, feed and water regularly and tend your new trees and shrubs with loving care. They can give you a lot of pleasure—and increase in value—year after year.

Reprinted from Changing Times, The Kiplinger Magazine, May 1957

ROADSIDE EROSION COST IS REDUCED

The planting of permanent shrubs and vines along steep roadside banks to control erosion greatly reduces annual maintenance expenditures of such locations.

The Pennsylvania Department of Highways is reported to have saved so much on maintenance costs by using plant materials that it enabled them to write off the initial expense of the plantings in two years. Maintenance of one steep slope on a highway in Massachusetts was costing $10,000 annually. By terracing and draining and then planting a plant cover the savings on maintenance paid for the work in ten years, with a saving of close to $100,000 since the end of the 10 year period.

Permanent plantings of shrubs and vines on steep slopes in most cases can eliminate heavy maintenance costs, and can provide roadside beauty that pays off in driving pleasure at less cost.



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Herbert C. Gundell, *Chairman, Educational Booths*



Herb Gundell, a 1949 graduate of Colorado A & M College (recently renamed Colorado State University) with a B.S. in horticulture, pioneered the job of adapting conventional county agricultural agent's work to city conditions. Under his diligent supervision the 4-H program in Denver continues to expand, and through his lawn contests homeowners take greater interest in their gardens. Herb also has a large following on his TV program, the Weekend Gardener on KLZ. He was president of the Colorado Forestry and Horticulture Association for two years, is on its Board of Trustees, and is a member of its Editorial Board.

Originally from Zurich, Switzerland, Herb came over to this country especially to enroll in Fort Collins agricultural college. When World War II broke out he joined the 87th Mountain division putting his skiing ability to good use.

After graduation, he went right into county agent work to become a well-known figure to homeowners through his radio and TV programs and newspaper articles. Friendly, busy, but always willing to lend a helping hand, Herb is well-qualified to head the Educational Committee.

GARDEN PROBLEMS—WHO'S GOT THE ANSWERS?

By PAT GALLAVAN

The fact that garden problems exist here in the high plains area is well-known by the professional and the novice. But the fact that the solution to these same problems is as close as the telephone is not.

"Well then, Sir, if help for knotty garden problems is available, kindly let me know where."

All right. First let's run through the public agencies. The County Agent is a good man to start with since he represents the State agricultural college and the Department of Agriculture of the Federal government. In urban areas he has been trained or has become proficient in home garden problems. He may have the answer in his head or he may have the information you seek at his finger tips in one of the great many garden bulletins the government has issued. His office is usually located at the county seat and in most cases in the County Court House.

In many cities the parks personnel can and often do assist local gardeners by giving advice. In larger cities the City Forester is a good source of information, especially for trees and shrubs. In Denver, the botanical gardens is an agency of the city, and can supply first hand information on plants grown and tested in their gardens. Offices at present are in the Denver Museum of Natural History in City Park. Their telephone number is FL 5-8156.

When it comes to private organizations, the Colorado Forestry and Horticulture Association stands at the top of the list. This non-profit group has retained for the past 12 years a full time horticulturist who answers garden questions by phone or mail. Offices at Horticulture House, 1355 Bannock are open to the public five days a week, Monday through Friday from 8:30 a.m. to 5:00 p.m.

Practically every town and city in the state has a garden club. Many of them have open membership and welcome new members. A lot of basic information is available through these clubs. Take a club with 20 or 30 members, each with his own garden, and you have a lot of practical facts gained through trial and error, with good friends and companionship tossed in to boot.

Then too, there are the individual plant societies such as the Rose Society, the Iris Society, the Gladiolus Society and others. In these clubs you meet specialists as well as novices who can give detailed data on particular plants.

This by no means exhausts the possibilities open to you. There are the sources for plant and garden materials—nurseries and seed stores —where sound advice is often available. Then there are a number of related organizations for special problems: Soil Conservation Service, Forest Service, State Fish and Game Department, and an array of others that are ready and willing to help make your gardening more enjoyable.



Mrs. Henry McLister,

Publicity Committee



Mrs. Henry McLister is an honest-to-goodness dirt gardener who gets tremendous enjoyment out of it—so much so that along about February on a deceptively warm day when Horticulture House is busy telling gardeners not to rush the season, "Liz" can be found busily working up a flower bed in her yard. Did you read her poem "Hello March" in The Green Thumb? This proves what we mean about her love for gardening and also proves she can write. We hope she'll contribute more soon. Another hobby of hers is photography. She even develops and prints her own and she loves golf and sports in general.

A member of the Colorado Forestry and Horticulture Association, Liz is on its Board of Trustees and served as secretary for a year. However, her main area of activity has been in publicity for all functions of the Association—particularly the 1957 Garden Fair which received outstanding coverage — and this year's combined Garden Show and Fair. Liz has two boys, Daniel and Frank, who prefer being called Dan and Pancho.

Any time a difficult organizational job needs doing, Mrs. Henry B. McLister heads our list and is always a willing volunteer.

Mrs. H. M. Kingery,

Chairman, Finance Committee



Elinor Eppich Kingery is a native Denverite, attended Denver public schools, and graduated from Stanford University as a Phi Beta Kappa. She spent a year at the New York School for Social Research.

Mrs. Kingery is at present in charge of the finances for the 1958 Garden Show and Fair. She has an interesting background in such varied activities as mountain climbing and editorial work. She edited "The

Climbers Guide to Colorado Mountains" and "Trail and Timberline." It was as a member of the Colorado Mountain Club that she met and married the late Dr. Hugh Kingery, who was in the Anatomy Department of the University of Colorado Medical School until his death. They have two sons, Hugh, a graduate of Cornell, and Karl, a student at Stanford.

Despite these time-consuming activities, Mrs. Kingery became interested and then active in the Neighborhood House Board, the League of Women Voters, and is a volunteer worker for the State Historical Society.

Mrs. Guilford Jones,
Chairman, Sales Booths



"Oh, Melanie, I haven't done very much." So said recently interviewed former president of the Junior League, who has also been secretary of the Garden Club of Denver, president of the Thursday Club, twice president of the Planned Parenthood Association, and head of the former Preventorium for tubercular children. As you can see, nothing is farther from the truth. "But all those things I did years ago." Well, what about today? Today Mrs. Guilford Jones of unhurried, gracious charm is still active in Planned Parenthood and the Garden Club of Denver. The latter group took as a project the landscaping of the little court yard between the opera house and Teller House in Central City.

An outstandingly different project Mrs. Jones works very hard on is the Santa Claus Shop. This organization plays Santa Claus to 16,000 children. Everything is donated and mothers whose names are submitted through reliable groups are given tickets with which to buy presents for their children. This idea is unique to Denver. A Philadelphian by birth, Mrs. Jones lived in Hartford, Connecticut, for 14 years before returning to Denver in 1944.

Mrs. Charles R. Enos,
Telephone Committee



"Taste this and see how you like it. Do you think it needs a little salt?" Of course it never does because the buffet luncheons Mrs.

Enos and her daughter Becky prepare for the second Friday of each month have became famous for drawing an almost perfect attendance for Board meetings. Mrs. Enos has been a member of the Colorado Forestry and Horticulture Association for many years and active not only on the Board of Trustees but on many committees of the Association—notably the Street and Shade Tree Committee. Lobbyist extraordinary, she has worked hard to get legislation passed for state parks. She is a member of the Blue Spruce Chapter of the Izaak Walton League and took over chairmanship of the 1957 Garden Fair in its beginning, later turning it over to Mrs. Honnen. Always down to earth, she is beloved by all for her wonderful sense of humor, her kindness, and her sometimes disconcerting ability to get right to a point.

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PROBLEMS IN FUTURE LAND USE

The above was the title of an informative and interesting address given by Dr. Marion Clawson, director of the Land Use and Management Program of Resources for the Future, Inc., at the annual Foresters' Day at Colorado State University on February 22.

Dr. Clawson speculated on the economy and culture of the people for whom we are managing these resources. He predicted a population growth of 1.7% annually which will give the United States a census of 220 to 250 million by 1980. There were 16½ million acres in towns and cities in 1950. By 1980, 40 million acres will be occupied by towns and cities. The number of persons 65 years or older will be three to four times the number at present.

Consequently there will be a great increase in outdoor recreation. It is increasing about 10% a year now. By the year 2000 the use of National Forests for recreation will likely be forty times as much as at present. This will probably push grazing out of the higher mountains.

Likewise, the demand for forest products is most certain to increase in the future. The better forest sites will be more intensively used, but the poorer sites will perhaps be utilized more for recreation or as water shed cover.

The same is true, Dr. Clawson said, for grazing lands. There will be greater demands for meat, with increased populations. A higher output of forage is then necessary and this will be obtained largely from better grazing lands, as in the plains states, by fertilization, more productive grasses, and forage plants.

Dr. Clawson estimated the increase in agricultural output at 1.8% a year. (Population increase 1.7% annually.) As a result there will be food surpluses for some time—at least for the next decade. In fact he predicts ample supplies of agricultural products in this country probably for the next three or four decades.

In answer to a question, Dr. Clawson said that in his opinion this is not the time for increasing the area of agricultural lands at great cost—referring to western irrigation projects. Water may be needed for much more important uses in the future—processing oil shale, etc.

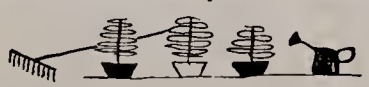
Dr. Clawson gave his audience much to think about—ideas that should be of special interest to Green Thumb readers.

—FRED R. JOHNSON



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Junior Green Thumb

RODDY AND THE EARTHSTARS

As told to his Mother



It was Labor Day and the last of his vacation at his grandparent's mountain cabin before he was to enter first grade at Slater School in Lakewood, Colorado. As he jumped logs in a pine thicket carpeted with moss and pine needles on the way back from a walk, Roddy White, six years old, found some earthstars. He picked two of them and ran to show them to his grandmother, who is a member of the Home Garden Club. When she asked him where he had found them, he said, "It was where it was nice and shady. It was by the side of a cliff and there was logs packed up to the top of the cliff and there was lots of moss on the logs. I looked around in that place—it was a grassy place—and there they was. They was under the logs. There was about six or eight. I didn't pick them all because I wanted to save some for somebody else. Besides it was muddy."

The earthstars, as described by Roddy, are, "about this big (a circle with the fingers about two inches in diameter) in the sunlight and about this big (a circle about one inch in diameter) in the shade." He observed that "the hot air makes them open and the cold air makes them close."



Earthstars are a very rare form of fungi growth. The outer part is pointed at regular intervals to resemble a star and the inner part, the spore, is shaped like a small ball. As for the coloring, Roddy said, "There was light brown petals and white on the edge of the petals and the center was brown".

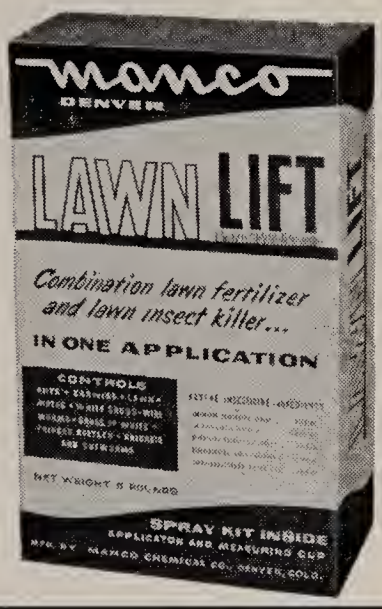
We are pleased at Roddy's interest in science and living things and hope his interests will continue along scientific lines. We also hope his grammar will improve.

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HIGHWAY LANDSCAPING MAKES SENSE

It is no accident that the Garden State Parkway in New Jersey was the safest of the nation's major toll roads for the second year in a row. It was nearly three times as safe as the average toll road with a fatality rate of 1.2 per 100 million vehicle miles compared to 3.1 for the average.

The Garden State Parkway is probably the best landscaped toll road in the country. The roadsides have been preserved and trees and shrubs planted wherever necessary to guide traffic and remove headlight glare from oncoming automobiles. It also is a beautiful highway, designed with coordinated engineering and landscaping skills to be quiet and restful. Despite the heavy traffic load, it is like driving along a country road. One could not with accuracy state that landscaping alone produced such an outstanding safety record, but good landscaping in combination with sound highway engineering most certainly did.

Charles Burr, Manchester, Conn., chairman of the American Association of Nurserymen's highway committee, recently stated:

"It's been demonstrated that proper planting of highways can reduce traffic accidents. If plans for landscape planting are included in the highway program from the beginning, the cost will be fractional compared with the cost of the highway construction. It's when you try to squeeze in planting after highways are built that landscape costs are increased."

Highway landscaping serves as a barrier or "muffler" for traffic noises and fumes in populated areas. It reduces hazardous monotony. It keeps property values from falling in residential areas through which the highways pass. It provides, with landscaping of access roads entering cities and towns, more beautiful approaches to municipalities that encourage local business. It is conceivable that considerable local, tourist, and other business could be drained from many municipalities if their approaches from the federal highways are drab and uninteresting, with consequent loss of tax revenues, plus accelerated depreciation of business and residential properties.

There is a great deal to lose and nothing to gain by not properly including functional landscaping in state plans for federal highways now while there is an opportunity to do so at the least possible cost.

Finally, landscaping can make and keep our national roadsides attractive. One has only to drive any heavily travelled, old U. S. Highway with its cluttered, slum-like roadsides to realize the necessity for making highways more beautiful.

Any way one looks at it, highway landscaping, presently practiced on a rapidly increasing scale in most states, makes sense.

This article prepared by the American Association of Nurserymen echoes the recommendations of the Street and Shade Tree Committee of your Association. For two years the Shade Tree Committee has been working diligently with both Governor McNichols and Mayor Nicholson as well as the Parks Department for landscaping new highways and replanting newly widened streets. For the sake of safety and beauty, residents should take an active interest in the landscaping of their city and state.

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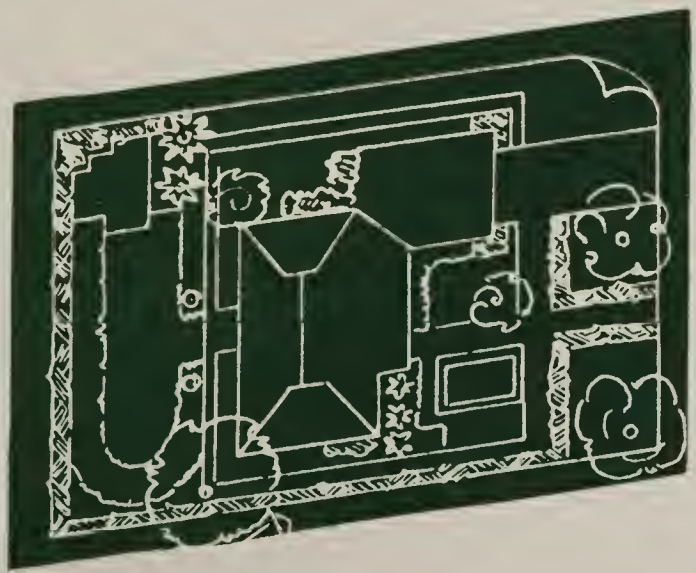
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The Green Thumb

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Vol. 15 JUNE, 1958 No. 5

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MEMO

Calendar of Events

"Fun with Flowers" — A lecture and demonstration is followed by the making of arrangements. Each person brings containers, mechanics, and material. The workshops are open to everyone. Due to popular demand the workshops will be held each month at the following times and places:

Workshop No. 1 — 1422 Kenton, Aurora, Second Thursday, 9:30 a.m. Chairman: Mrs. Fred Harper, 270 Jersey, Denver.

Workshop No. 2 — Lakeside Denver Dry Goods, 44th & Harlan, Denver, First Tuesday, 10:00 a.m. Chairman: Mrs. C. C. Buckbee, 4190 Depew, Denver.

Workshop No. 3 — Englewood State Bank, 180 East Hampden, Englewood, Second Wednesday, 10:00 a.m. Chairman: Mrs. H. E. Cluphf, 3888 South Grant, Englewood.

Workshop No. 4 — Arapahoe County Fair Grounds, W. Belleview and Windemere, Littleton. Third Tuesday, 10:00 a.m. Chairman: Mrs. John Sobiella, 386 North Windemere.

Every Wednesday—Garden Guide, Channel 6 KRMA, 7:30 P.M., Pat Gallavan.

June 7—Home Garden Club flower show, Denver Museum of Natural History, City Park, 12 noon to closing time; theme: Flowers and Feathers.

June 11 — First Look and Learn Tour. East Park Hill District, 10 a.m. to 5 p.m. See listing on following page.

June 12 — Denver Rose Society meets second Thursday of each month, City & County Bldg., Rm. 100, 8 p.m.

June 22 — Denver Rose Societies Annual Rose Show, U. S. National Bank, Mile High Center. Open to public 2 p.m. to 5 p.m.

July 2—Botany Club meets the first Wednesday of each month, 7:30 p.m., Horticulture House.

July 9 — Second Look and Learn Tour. Lakewood area, 10 to 5 p.m.

July 30 — Third Look and Learn Tour. Belcaro Park, 10 to 5 p.m.

August 13 — Fourth Look and Learn Tour. Applewood Mesa, 10 a.m. to 5 p.m.

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ANNUAL LOOK AND LEARN GARDEN TOURS SCHEDULED

The first of our regularly scheduled summer garden tours will be held Wednesday, June 11th, between 10 a. m. and 5 p.m., in the east section of Park Hill. It promises to be an interesting one.

Educators have said for years that one picture is worth a thousand words. This is especially true in gardening. One has to see a garden to fully appreciate its beauty and charm. On this premise, eight years ago the Association sponsored the first Look and Learn Tour. Its immediate success prompted the Association to make it an annual event which has done much for our educational program and has helped a great deal financially.

We all have the opportunity to work in our own yards and to see the gardens of a few of our neighbors each season, but through the tours you can visit 8 lovely gardens this summer which were chosen by Mrs. Alexander Barbour and Mrs. Hugh Catherwood. They assure us they have some fine ones lined up—large, small, simple, complex, etc.—take your choice. The following will be on display:

Dr. and Mrs. George D. Ellis, 1670 Poplar Street

Mr. and Mrs. Henry Folmer, 2240 Niagara Street

Mr. and Mrs. L. D. Turrentine, 2530 Niagara Street

Mr. and Mrs. B. F. Napheys, Jr., 2810 Magnolia Street

Mr. and Mrs. William H. Stokes, 2690 Locust Street

Mr. and Mrs. E. C. Courtney, 2620 Krameria Street

Mr. and Mrs. Donald T. Spangenberg, 5101 Montview Blvd.

Tours II, III, IV will be held in July and August (July 9, July 30, and August 13). Season tickets are $3.00 and may be purchased here at Horticulture House or at the gardens.



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Arrangement of The Month

If simplicity is the essence of beauty, then the above arrangement of Golden Rapture roses and iris leaves in a brass pitcher is surely beautiful. The horizontal ridges of the pitcher balance the vertical line of the iris leaves that serve as a flat plane for the three yellow roses in different stages of bloom. A single cluster of rose leaves against the brass and next to the looped handle adds detail contrast.



No it is not Wash Day, but part of the debris disgorged by Morning Glory Pool on October 16, 1950.

MAN AND GEYSERS

By DAVID DE L. CONDON
Chief Park Naturalist, Yellowstone National Park

It was in 1808 that John Colter encountered the wonders of hot spring areas in the remote wilderness of the Rocky Mountains. His vague stories of the oddities he had seen aroused skepticism in the minds of his listeners. From historians we learn that his experiences were the first evidence of contact between white man and the now world famous geyser basins of Yellowstone National Park.

Years after Colter's discovery of the hot spring phenomena, Daniel T. Potts, a member of a trapping party, wrote an interesting account of geysers to his brother on July 8, 1827. In this letter he described his experience in what is now the West Thumb Geyser Basin on the shore of Yellowstone Lake. This trapping party was the forerunner of many similar groups that followed into the Yellowstone country. This was the beginning of white man's use of the geyser basins as a place to go to satisfy a desire to see, and attempt to understand, the curiosities of the area. It was also the beginning of an increasing and thoughtless abuse by man of the infinitely beautiful creations of na-

ture. The delicate, friable, and lustrous pattern of mineral matter deposited around the vents of hot springs and geysers became objects to be desired and possessed by the collector.

Undoubtedly the early trappers broke specimens free from their original sites. These same men probably carried the beautiful objects for a period of time, then found them more a nuisance than objects of value and disposed of them.

The Henry D. Washburn-Lt. Gustavus C. Doane party explored Yellowstone in 1870, and from its efforts and those of the official government survey party of 1871 headed by F. V. Hayden, action was initiated which brought about the establishment of Yellowstone National Park on March 1, 1872. The original act of Congress which established the park withdrew the land from public occupancy. A portion of the bill stated that the park was to be "dedicated and set apart as a public park or pleasuring-ground for the benefit and enjoyment of the people." The Secretary of Interior was directed to establish regulations for its care and management, and specifically told: "Such regulations shall provide for the preservation from injury or spoilation, of all timber, mineral deposits, natural curiosities, or wonders within said park, and their retention in their natural condition."

Action was taken by the Secretary of Interior to carry out the mandate of Congress and through the years, since the park's establishment, a continuous effort has been made to protect from injury and spoilation the priceless resources Congress reserved for the people's enjoyment. The protective efforts have expanded and the policies of management have kept abreast of the times. Yet in spite of the desire and efforts to protect and preserve these resources, they are and have been continually subject to visitor abuse. The early visitors to the geyser basins, before they were set aside as part of a National Park, harmed the thermal features in satisfying their curiosity. Other men in later years and in increasing numbers followed their mode of behavior and the impact of destruction grew.

Along with a desire to collect and carry away objects of interest, many had the urge to cast objects into a spring, a pool, or a geyser. Through the years literally tons of foreign debris have been deposited in the surface openings of the hundreds of hot springs in Yellowstone. An examination of almost any spring vent will reveal some kind of debris down in the throat of the opening which has been thrown there by man. This is a shocking reality and should make us stop and ponder the eventual fate of these priceless resources. Will they be perpetuated in all their uniqueness and beauty for future generations? We think they will, for in spite of the ever increasing number of visitors, the impact upon the thermal areas is not as great as in the park's early formative years.

Early diaries and journals kept by the visitors during the era from 1872 (when the park was established) to 1900 indicate that it was common practice for visitors to collect choice specimens of geyserite, travertine, and other minerals unique to Yellowstone, hauling them home in their wagons, surreys or other conveyances. They tell of using the geysers and hot pools as places where laundry could be conveniently



National Park service employees lowering the water in Morning Glory Pool so that the debris tossed in by park visitors can be cleaned from its walls.

washed with a minimum of effort on their part. Some even tell of placing logs and other objects in geyser vents to see how high they would be thrown when the geyser erupted, or whether the force of the geyser's eruption would eject the object placed in it—a practice followed on rare occasions even today by unthinking people.

Early photographs taken by W. H. Jackson reveal beautiful beaded and cauliflower-like masses of geyserite at such geysers as Castle, Grand, Great Fountain, Old Faithful and others. In virtually all instances these cones today reveal that large quantities of the beautiful geyserite mineral deposits have been broken away and taken by curiosity seekers.

All this desecration did not happen at once, but has been cumulative over a period of many years. Evidence indicates that the most serious damage was done soon after the park began receiving parties in conveyances capable of hauling away these curiously interesting objects. They were taken home to those not able to come and see them in the park. Undoubtedly the collector meant no appreciable wrong. To the early visitor, these objects of interest were in abundance and so what he removed made no difference; after all, there were so few visitors that any object they took would never be missed.

We can never regain the losses of yesterday but we can preserve the resources much as they are today. Each year brings pronounced changes which can be attributed to



Above (Three years' accumulation of rubbish taken from Blue Star Spring. Below, part of the litter taken from Brilliant Pool—much more is inaccessable. The informational sign is covered with penciled names.



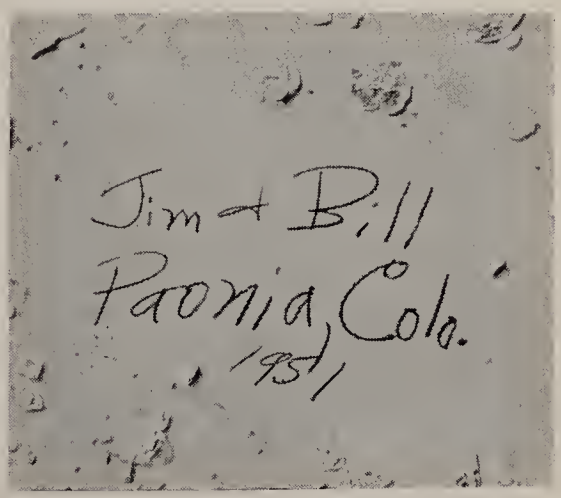
the things which men do. Visitors in 1957 left their imprint on the geyser basins much as have those who went before them.

The 1957 travel season in Yellowstone saw 1,595,875 visitors entering the park for the purpose of enjoying in some way the many beautiful and unusual features for which it is famous. If each of these visitors had followed the practice of promiscuous wandering so common during the era of early park development, great havoc would have resulted in the geyser basins. Instead, they used well marked and controlled routes of access to features, and also had available other aids to wise and controlled use. Adverse uses did occur, debris did find its way into the geysers and springs, and undoubtedly some specimens were taken. But, we have come a long way in developing an understanding and appreciation of the priceless heritage in our National Parks. The people, in ever increasing numbers, are responding with a sincere appreciation of the need for complete protection and preservation of the unique hot water resource with which Yellowstone is endowed.

Hot springs, whether they be geysers, beautiful pools, mud pots or free flowing streams, lead a precarious existence without man adding to their problems. Intricate relationships control their behavior patterns. If these are modified by man's thoughtless or deliberate acts, changes may occur which alter the beauty of their form or color and even change the fascinating peculiarities of their eruptive action.

Nature has taken thousands of years through the constant action of flowing springs, roaring steam vents, hissing fumaroles and erupting geysers to create these thermal oddities: incomparable mounds and cones of geyserite; superb and symmetrical travertine terraces; brilliant pools and fantastic mud cauldrons. These are creations of unusual beauty, some with striking symmetry of form and limpid depths in their pools. There is soft coloring in the patterns of many hues that drape away from the springs where they flood in an ever widening circle over the formations of mineral they have deposited.

These features are all exceedingly precious and can be easily destroyed or marred by deliberate or thoughtless acts of man. A pebble tossed here, a specimen broken off there, a name carved in a spring runoff, none of these would be catastrophic. They would be serious offenses, but would not cause undue alarm if there were only these and no more. But if we take these individual acts and multiply them by hundreds of thousands we are confronted with a problem of unusual and very serious proportions. The effects of just one year's adverse usage creates scars that may never heal. To prevent this



Close to home, such scars have spoiled the beauty of the creamy geyserite around the pools.

we must avoid a single act of thoughtlessness, and above all, any semblance of mass abuse.

It is a constant struggle to protect these cherished possessions from the unthinking acts of many. Each year there is continuing evidence of mass abuse by park visitors of features in the geyser basins. These people are mimics—one name carved in a colorful algal bed is soon followed by others, and one coin tossed into a pool and readily visible to large numbers of people soon multiplies into hundreds of coins, tax tokens and other rubbish.

Morning Glory Pool in the upper geyser basin is constantly plagued with abuse by the rubbish tosser. This pool was once a gem of unrivaled beauty. It has been so continuously battered by the thoughtless and unappreciative that much of its original peerless character is lost.

After several attempts to thoroughly clean the rubbish from the walls of Morning Glory Pool during the summer and fall of 1950, it was concluded that if this hot spring could be induced to erupt it might disgorge a portion of the debris tossed into it. After one unsuccessful attempt the Morning Glory did erupt at about 6:00 p.m. on the evening of October 16. Mr. George Marler, who was on the geyser basin cleanup crew, observed the final phase of this eruption and on the 17th spent the day gathering up the debris thrown from the pool during its eruption. He recovered 111 different kinds of objects. Coins predominated, and he picked up $86.27 in pennies and $8.10 in nickels, dimes, and quarters. A large number of foreign coins and a box full of tax tokens originating in nine different states were gathered; also trade tokens, street car tokens and several pieces of play money. The list of identifiable items recovered was astounding because it included such a variety of personal possessions. In addition to the coins, linen articles were abundant. There were 76 handkerchiefs, several linen hand and dish towels, and one large bath towel. Marler had this to say in his special report on this unusual eruption:

"While the amount of rubbish Morning Glory disgorged was great in both amount and variety, this debris was but a small fraction of what still remains in the pool. By far, most of the extraneous material the eruptive water lifted fell back into the crater. No rocks heavier than about a pound were disgorged. Boulders and trees can be seen in the bottom of the crater under favorable light. For each penny that got over the rim of the crater during the eruption there are undoubtedly ten or more still in the pool."

This pool is still being treated by visitors as a receptacle for various objects, and discriminating people who love beautiful things are sick at heart when they approach its rim only to discover its walls covered with rubbish tossed into it by vandals. Morning Glory was once a lovely pool, deep, trumpet shaped, with fluted and scalloped walls of pure white sinter. The deep limpid water took on a sky blue color and this beautiful basin was bordered by a wide rust-red band of brilliant algal growth. It was a creation of indescribable beauty, a beauty which may never be regained—certainly not until people refrain from their abuse.

The insurmountable aspect of the accumulation of man's rubbish in the thermal features is not the visi-

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ble debris, which is repulsive to the eye and so universally detracts from their beauty, but it is the inevitable fact that large quantities of these objects tossed into these irreplaceable springs, geysers and pools can never be removed. Debris finds its way down into the subterranean pipes, crevices and channels that are supplying the ever precious crystal-clear hot water, steam and energy. The continued accumulation of debris in these underground supply channels plugs them securely. The water, steam vapors, and source of energy are sealed out, and a masterpiece of nature's handiwork ceases to be.

Each park visitor can help stop this devastation in the geyser basins by never being guilty of any act of thoughtless vandalism, and by teaching others proper respect for public property. Yellowstone National Park is yours in joint ownership with all citizens of the United States. It is your responsibility to treat it kindly and to see that others do likewise.

These fascinating and intriguing geysers, the brilliant pools, the engrossing mud pots, and the myriad other arresting aspects of the hot water resource of Yellowstone have been subject to cumulative abuse of astronomical proportions since white man first began to use them for his enjoyment and pleasure. They have survived, even though at times they have been badly treated. If we are to preserve them we must be ever alert to prevent any and all abuses of them. Geysers and man can continue their associations as long as man will be discreet in his treatment of them. Carelessness will mean their end.

The Yellowstone National Park personnel and the National Park Service are working hard to rectify the past abuses of thermal areas, and are leaving no stone unturned in their program to protect these unusual resources in the years to come. Man and Geysers are what have made Yellowstone National Park world famous, and the geysers will continue to bring enjoyment to generations of man yet to come.

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EASTERN WILD FLOWERS FOR THE DENVER SHADE GARDEN

JOHN C. LONG

With such a great abundance of beautiful local wild flowers to choose from one may reasonably ask why bother with flowers from a different locality. The query can be answered in several ways. Our plains flowers, which would be admirably suited to growth in Denver, are largely sun-loving. Many of the shade flowers from the higher mountains do not thrive on the plains because of different climate and soil. Actually, many of the shade-loving plants of the Eastern woods do better in cultivation in Denver than do some of the Colorado mountain shade plants. I suspect that one strong reason that many of us wish to grow Eastern wild flowers is an attempt to recapture the thrill felt as children in discovering these blossoms in the woods. The most valid reason, however, is that many of these plants are interesting and attractive and well suited for certain spots in the garden.

For several years I have been growing, or attempting to grow, a variety of shade plants from the woods of eastern North America. Many of them have been obtained from a nursery in the mountains of North Carolina. Some I have collected personally from Virginia, Tennessee, Indiana, Missouri and other states. A few have been procured from local nurseries.

Beds have been prepared on the north side of the house and garage and also in the shade of trees. Particular care has been taken in the preparation of the soil. Very generous amounts of sheep manure, leaf mold, and especially Canadian peat have been used. This material has been rather thoroughly mixed with the soil and an additional layer of Canadian peat used as a cover. The result is doubtless a poor substitute for Appalachian humus, but some of the plants don't seem to know this. An attempt is made to keep the beds well watered during the summer. Weeds are not a bad problem. Apparently most of our local weeds don't like the peaty soil. In any event, the soil is loose enough so that an offender is easily plucked. The following is a list, by families, of plants that have been grown under these conditions:

Ferns *(Filicales)*

Several ferns have been tried. The maidenhair *(Adiantum pedi-atum)* does well and is always attractive. The royal *(Osmunda regalis)* and interrupted *(Osmunda claytoniana)* ferns are quite showy but sometimes get nipped by our late spring frosts. New fronds soon appear if the first ones are destroyed.

Arum Family *(Araceae)*

Two members of the Arum family have been attempted. The Jack-in-the-Pulpit *(Arisaema triphyllum)* has been an outstanding success. This interesting plant has reappeared year after year with some increase from corm division. Propagation by seed has been practical but slow. The Eastern Skunk Cabbage *(Symplocarpus foetidus)* bloomed only the first year and sent

up its coarse foliage annually for several years, finally disappearing. As this is normally a swamp inhabitant, I probably didn't keep it wet enough.

Lily Family *(Liliaceae)*

The Turk's Cap lily *(Lilium superbum)* continues to bloom after several years, but never as profusely as depicted in the flower guides. Its bright reddish-yellow blossoms are conspicuous in the predominantly green bed. The Yellow Adder's-tongue *(Erythronium americanum)* bloomed the first season but did not survive the following winter. Several trilliums have been tried. *Trillium sessile* and *Trillium grandiflorum* flourish, the latter being much the more attractive. Unfortunately, several specimens of the Painted Trillium *(Trillium undulatum)* have bloomed poorly and then given up.



Top, *Trillium sessile*



Bottom, *Trillium grandiflorum*



Yellow Lady's Slipper Orchid

Orchid Family *(Orchidaceae)*

The terrestrial native orchids have been a challenge and delight. Most satisfactory have been the Yellow Lady's-slipper *(Cypripedium calceolus)* and the Showy Lady's-slipper *(C. reginae)*. Both of these have lasted for years, providing beautiful and interesting flowers in late May and June. To us, the pleasure derived from these two Lady's-slippers has justified the shade beds. The plants seem to do better and the flowers are more colorful when exposed to a minimum of sunlight. We have been much less successful with the Pink Moccasin-flower *(Cypripedium acaule)*. One year it flourished, producing over a dozen interesting blooms. Next year none of the plants came up. Repeated attempts with this odd orchid have been discouraging and a little expensive. The Showy Orchis *(Orchis spectabilis)*, also, has not been a success. One has bloomed for three years, the plant and blossoms looking sadder each year. The Round-leaved Orchis *(Orchis rotundifolia)* has done well, producing more flowers each season. We have had no luck at all with the Puttyroot *(Aplectrum hymenale)*, Yellow Fringe Orchid *(Habenaria ciliaris)* or Crippled Crane-fly *(Tipularia discolor)*.

Birthwort Family *(Aristolochiaceae)*

Wild Ginger *(Asarum canadense)* has done so well that an occasional ruthless pruning has been necessary. It is an excellent ground cover with large leaves and a fascinating, though hidden, flower. One of my current ambitions is to grow a close relative, the Dutchman's pipe vine *(Aristolochia durior)*. As yet, I have not obtained any material.

Buttercup Family *(Ranunculaceae)*

The common eastern Columbine *(Aquilegia canadensis)* thrives in Denver but isn't nearly as showy as our own native *A. caerulea*. Liverleaf *(Hepatica americana)* has done very well when provided with considerable shade. The clusters of flowers are a delight in early spring, followed by attractive and almost evergreen foliage. Rue Anemone *(Anemonella thalictroides)* seems happy in our environment. This cheerful little flower with its dainty lobed leaves is a pleasant addition to the garden, especially as it has a long blooming season.



Rue Anemone

Barberry Family *(Berberidaceae)*

The Mayapple *(Podophyllum peltatum)* has thrived. We at first feared that its habit of spreading by underground stolons might make it a nuisance, but such has not proven to be the case. Twinleaf *(Jeffersonia diphylla)* was introduced two years ago from Indiana. It has bloomed well and has an interesting leaf divided into two equal lobes.

Poppy Family *(Papaveraceae)*

Bloodroot *(Sanguinaria canadensis)* has been a very successful plant. It has so spread, both by root and seedlings, that an occasional thinning is indicated. Shortly after April 1st grayish-green spears shoot up through the peat mulch. Each spear is an unopened blossom encased in a folded leaf. Soon the leaf unfurls and the conspicuous white flower expands. Bloodroot and Dutchman's Breeches are planted together and



Bloodroot

bloom at the same time, making an attractive showing. The large lobed leaves of the Bloodroot, if spared by hail, remain interesting all summer.

Fumitory Family *(Fumariaceae)*

Dutchman's Breeches *(Dicentra cucullaria)*, a close relative of Bleedingheart, continues year after year to be a pleasing early spring attraction. The plant has gradually multiplied. The finely divided leaves have entirely disappeared by July so that no trace of the plant shows until the next spring. Squirrel Corn *(Dicentra canadensis)* bloomed once and then got lost. It resembles Dutchman's Breeches but is not as attractive.



Dutchman's Breeches

Pitcher Plant Family *(Sarraceniaceae)*

Early one spring I planted some Pitcher Plants *(Sarracenia purpurea)*. They did not bloom but the pitcher-shaped leaves were a matter of interest all summer. The bed was probably too dry for this marsh dweller.

Bean Family *(Leguminosae)*

Several years ago we planted a Redbud *(Cercis canadensis)*, obtained from a local nursery. It has flourished in a partially protected location and at present is a spreading shrub over fifteen feet in height. It competes with the flowering crabs in the spring show. Late frosts sometimes make it lose the contest. The large heart-shaped leaves are quite distinctive.



Jewelweed

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Balsam Family
(Balsaminaceae)

Jewelweed *(Impatiens capensis)* was probably introduced accidentally with a shipment of plants from an eastern nursery. As it has been found growing wild near Denver, I did not feel that its propagation represented any additional likelihood of its becoming a nuisance. The golden speckled flowers are interesting and the explosive seed pods give rise to the name "touch-me-not." The posterior sepal of the Jewelweed is much more distinctly spurred than is that of the cultivated *Impatiens*. This plant is an annual but produces enough seed to insure its reappearance.

Diapensia Family
(Diapensiaceae)

The interesting evergreen ground cover, Colt's Foot *(Galax aphylla)*, has been only moderately successful. It has survived for several years and has occasionally bloomed. The leaves do not get as large as in its native Virginia and Tennessee, where they are used for floral decorations. A town in Virginia has been named after this plant.

We have doubtless had other horticultural failures that have been forgotten. Of the shade plants listed above, the most satisfying have been:

Snow Trillium *(Trillium grandiflorum)*, Jack-in-the-Pulpit *(Arisaema triphyllum)*, Yellow Lady's-slipper *(Cypripedium calceolus)*, Showy Lady's-slipper *(Cypripedium reginae)*, Wild Ginger *(Asarum canadense)*, Liverleaf *(Hepatica americana)*, Rue Anemone *(Anemonella thalactroides)*, Bloodroot *(Sanguinaria canadensis)* and Dutchman's Breeches *(Dicentra cucullaria)*. The main disadvantage to most of these plants is that their blooming season is confined to the spring. Happily, they provide attractive greenery throughout the summer.

The above dissertation is not a report on any serious scientific effort on the part of the gardener, but rather an account of experiences gleaned while growing things just for the fun of it.

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MINIATURE ROSES BLOOM ALL SUMMER

By MAUD MCCORMICK



"Will it bloom all summer?" is a question commonly asked by the amateur gardener whenever a plant is recommended. The number of plants which do bloom continuously is quite definitely limited, of course, and any addition to the list is most welcome. Miniature roses, which are winning friends and influencing more and more gardeners all over the country, are satisfactory all-season bloomers and have many other commendable qualities as well. The tiny, symmetrical plants are quite justifiably known as fairy roses and often derive their variety names from old fairy tales. They are also a quite recent development in our country.

As late as 1942, in *My Friend the Rose*, Francis E. Lester could write of only one known "fairy rose," *Lawranciana*, which could be grown from seed, though the seedlings "vary from frail and fleeting pale-toned flowers to deep red double lasting bloom. They are good for border planting, continually blooming, and take care of themselves even when neglected. Also in their dainty loveliness, they should be an effective antidote for our present-day craze for bigness in everything." If he could write so approvingly about the earliest known of the small roses, what might he not say in enthusiastic delight about the many jewels of tiny rose plants produced since that time by our hybridizers?

There is now a fairly long list of miniature roses, varying in color as much as the standard roses do. Some are now fragrant as the earlier kind was not. The plants may be symmetrical globular bushes as small as six inches in diameter or twice that size. Their buds are long and graceful, much like the hybrid teas in form, and the blossoms are delicate and perfect and rarely as large as a half-dollar. They are all very floriferous and continue blooming far into the fall. The wine-red fall foliage and often sparkling rose hips as well, also make a not inconsiderable contribution to the late autumn scene. There are even miniature tree-roses and little climbers whose canes

never grow more than five feet long. One plant suggested for use as a ground cover is said to have "single white flowers like strawberry blooms." Besides, they are usually very hardy, though some of the most recent introductions may need the protection suggested for our hybrid tea roses.

It was hardly a score of years ago that Robert Pyle in Pennsylvania and Ralph E. Moore in California grew interested in miniature roses. Soon Conrad Pyle was listing in the rose catalog fairy roses Mr. Pyle had found in Holland and in Spain. Soon, too, Ralph Moore was introducing the first of his small hybrids. Many of his later varieties have been patented, among them the first yellow produced on a small bush.

Mr. Pyle's baby roses came to my attention more than a decade ago and I still have three of the five plants I purchased at that time. A white rose, whose name I have forgotten, lived only a year or two. One other plant died when moved several years afterwards. Tom Thumb, though, has endured my ignorance and neglect all these years and still thrives and blooms abundantly each summer.

Perhaps the use of these small charmers only under rock-garden conditions has had a great deal to do with the little interest they have aroused here. Rock-garden culture suggests a different kind of treatment from what we give to other members of the rose family, and these tiny members of the clan require the same handling as do their larger relatives. They need sunshine, good soil, and ample moisture but not wet feet. Some need the same winter protection as do the larger roses. Some, too, profit by the same treatment to ward off the same pests and diseases. It is quite true, however, that I have found the miniatures less inclined to suffer ailments than the hybrid tea roses are.

Eastern writers report that these little rose bushes are used extensively as borders and produce their bloom from June until frost. California miniatures have an even longer season of bloom and the plants are found in generous use. Here few gardeners have given them a fair trial. Few local nurserymen list them. Most of the people with whom I have talked have had little more experience with them than I have had. Many may even have neglected the plants as I have done only to have them thrive under such treatment. At any rate, I have not learned of miniatures being used extensively as borders in rose gardens or even in other perennial bor-

Landscape gardening embraces, in the circle of its perfections, many elements of beauty; certainly not a less number than the modern chemists count as the simplest conditions of matter. But with something of the feeling of the old philosophers, who believed that earth, air, fire and water, included everything in nature, we like to go back to the plain and simple facts, of breadth and importance enough to embrace a multitude of little details. The great elements then, of landscape gardening, as we understand it, are TREES and GRASS.—*Downing's Landscape Gardening and Rural Architecture, 1865.*

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ders. And they should be. Think of tidy little round bushes in bloom all summer with an extra dividend of colorful foliage and rose hips in autumn. Think, too, of their delicacy and grace in corsages and in miniature arrangements about the house.

It is frequently suggested that these miniatures be used as pot plants in winter. Certainly a six- or eight-inch globular rose plant covered with the delicate fairy blossoms would be worth considerable effort. After the winter is over, there would still be the joy of planting them outside for summer bloom. Of the procedure I know nothing except that the problem of getting enough sunshine and humidity in our homes would not be too easy to solve. There would need to be supplemental fertilizing as for all other houseplants. Besides, like lily-of-the-valley pips, they would have to achieve natural dormancy in outdoor cold before the forcing could begin.

Perhaps I should append a list of varieties, but I do not know enough of my own experience to make recommendations. Tom Thumb I would keep in my garden, of course. It has been eminently satisfactory for many years. Sweet Fairy is highly praised. Cinderella, Tinker Bell, Thumbelina, Bo Peep —how delightful could a fairy-tale garden of roses be?

Snowball or *Styrax japonica,* blooming in June with snow-white drooping bells, should be tried in Boulder and Denver in light soil with peatmoss. It should be shaded from the hot sun to prevent too early blossoming. —M.W.P.

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IRIS HYBRIDIZING

WHAT, WHO, AND WHY

By LYS HOUSLEY

A well-known garden writer in a recent book on garden flowers makes the statement that the gardener should not buy new varieties of iris unless he has "more money than brains." He goes on to suggest that the new varieties are not really any better than the old ones.

This will be astonishing news to the many breeders across the country and right here in the Rocky Mountain region who have dedicated their lives to developing *newer* and *better* iris plants. And if you care to visit any of them, you will probably see the above statement disproven in front of your eyes.

Who are these iris breeders and what are they doing? Perhaps you would like to meet some of them who live next door to you here in Colorado. We will start by introducing to you a gentleman who is the "Elder Statesman" of the iris world, not only in Colorado, but perhaps in the whole country—Dr. Phillip Loomis of Colorado Springs.

Most of you who grow any iris at all are likely to grow that all-time favorite, the gorgeous big Elmohr. Did you know that Elmohr was developed right here in Colorado by Dr. Loomis? And that it is descended from an exotic line of Asiatic plants that are very difficult to hybridize? William Mohr of California developed the beautiful plant (named for him after his untimely death in an automobile accident in the 1920's) from the huge oncocyclus species, *gatesii,* a native of the Holy Land.

Ever since then, breeders have been trying to get offspring from the iris, Wm. Mohr, and very rarely succeed in getting so much as a seed, but Dr. Loomis succeeded in getting Elmohr from Wm. Mohr. What if Dr. Loomis had merely looked at Wm. Mohr and shrugged his shoulders and said, "Oh, that one is good enough—we can't get a better one than that, and it is very difficult, so why try?" Think of the pleasure countless gardeners would have missed if they had not ever seen or grown Elmohr! Or what if Dr. Loomis had thought that Blue Shimmer—which is indeed a nice flower—were as good a blue plicata as you could ever hope to find and had not bothered to make the careful crosses that brought Castle Rock. If you have the opportunity, compare these iris: Mme. Chereau, one of the earliest blue plicatas; Blue Shimmer, and Castle Rock. See for yourself whether or not you think progress is being made in hybridizing newer varieties. This may inspire you to watch for this year's introductions.

Dr. Loomis is retired from his medical practice but may still be found on a bright June day looking over the wonders in his garden, many of them developed by his own hand. And in Colorado Springs, there is another doctor—Dr. Brown—who with his wife is also developing newer and more beautiful iris. The late Jay Lincoln, of Pueblo, was another of Dr. Loomis' friends who hybridized in addition to having a commercial garden. His work is being carried on by his wife.

Up in Boulder, where the many acres of Long's gardens have long



The foothills form a perfect backdrop for the Roy Rogers' Iris Garden.

been famous for their displays in iris and gladiolus seasons, Mr. and Mrs. Everett Long are turning their hands to hybridizing, too. Perhaps in a few years they will show us something unusual for they are interested in exotic plants of the oncocyclus group and also in the pumila-type dwarfs.

At the foot of the mountain, just off of Arapahoe Street in Boulder, Roy Rogers and his daughter, Mrs. Toy, have a beautiful commercial garden where Mr. Rogers has grown many of his own seedlings including a lovely flaring bi-color in tones of violet, called Mexican Hat, and an unusual variegata, Late Caller. Mr. Rogers has many others which his admirers think should be named.



White Mohr seedling by Dr. Loomis

but his exacting taste has prevented his naming them and putting them on the market. It is thus that iris breeders are improving the varieties all the time. It is not enough for them that something is "just as good as" something that is already on the market. It must be *better* than or *different* from the varieties already available. This means throwing away thousands of seedlings that might look very good to the unpracticed eye. It means back-breaking work, heart-breaking disappointments, and often years of patience before *the* plant blooms which the hybridizer considers worthy of naming. To dismiss this kind of work and patience as mere fruitless nothing is only to display ignorance.

It is love of beauty and the challenge to produce something unique that keeps the hybridizer going. And it was something unique that Mr. and Mrs. O. T. Baker of Baker's Acre, Lakewood, found in their seedling beds the day that Baby's Bonnet first bloomed. Dating back even before the classic Wabash and up to the most modern developments by Geddes Douglas and Paul Cook, there have been many white and purple amoenas. (An amoena is an iris with white standards and colored falls.) Jean Stevens of Australia and several American breeders have produced amoenas with yellow falls. But what the Bakers found in their garden was an amoena with ochraceous-salmon-pink falls and pure white standards! You could buy all the old varieties you wanted, you would never have found a Baby's Bonnet amongst them, because there had never been a Baby's Bonnet before. This year the Bakers are also introducing a very fine iris called Wayward Wind, outstanding for substance and smoothness of color. Its color might almost be half-way between maple syrup and honey, and the beard is the same shade as the petals.

Another extremely unusual iris has been named by the two growers, Mr. Everett Cline and Dr. J. R. Durrance. In spite of the best-laid plans of mice and hybridizers, sometimes Nature steps in and takes a hand. She sends her busy bees out to spread pollen on the stigmas of the flowers, and usually 999 times out of a thousand an unplanned bee cross is nothing a grower wants to keep. But this time the bee rested on Oyez, an exquisite little oncobred iris—one of the few plants that has ever actually brought tears to this iris-loving writer's eyes because of such enchanting beauty. From the bee-carried pollen on little Oyez came the great, tall, striking Volunteer Fireman, so-named by Messrs. Cline and Durrance because its novel coloring is as close to a red as you are likely to see in an iris. It is not a red-self, but is rather covered with a heavy red

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veining, and I defy any one—famous garden writer or anyone else—to show me another flower exactly like Volunteer Fireman!

And if so many strange and wonderful things can come from Colorado, think of what is going on in the other 47 states, New Zealand, Australia, England, South Africa, and various European countries where there is much enthusiastic hybridizing going on.

Those growers we have already mentioned are not the only ones who are pursuing this fascinating occupation in Colorado. Nor are the flowers mentioned the only worthwhile productions of the hybridizers you have now met.

Dr. Durrance is doing work along several lines including many very unusual varieties and species. Mr. Cline is specializing in lacy pinks, and so is his neighbor, Don Weber, who has many fine seedlings both in the pink line and in the coppery blends. In the same part of town—South Denver — Mrs. Ted Weber and Mrs. C. R. Osgood are also planting their iris seeds to see what new beauties they can discover. Mr. Lemoine Bechtold, famous for daylilies, has also hybridized iris.

In other parts of Denver, Mr. L. J. Holland is specializing in oncocyclus and onco-bred plants, W. S. Wood is working for smooth reds and blacks, Mr. and Mrs. Guy Herstrom of Lakewood, Mrs. F. W. Sandholm, and Mr. and Mrs. J. O. Riley and their teen-age son, Bob, are all seeking that very special new plicata in their breeding. In our own garden, we are looking for "something different" and crossing many different species, beardless and dwarf, as well as tall bearded.

So if you really want to know whether or not the newer varieties of iris are worthwhile, come visit some of us and see what we are growing or go out to Denver's City Park and see both the newer named varieties and a few samples from the seedling beds of Colorado's hybridizers. Who knows, maybe you, too, will join the growing ranks of those who have been bitten by the hybridizing bug.

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BEST GLADS FOR HOME USE

By MR. AND MRS. SIDNEY L. BALDRIDGE

In selecting gladiolus for the home garden, varieties that have been proven to be reliable and that are known to do well in your locality should be chosen. Out of the over four hundred and fifty varieties which we grew here in Greeley last year we have picked the ones that are in our opinion the best for this area. It is possible to get different strains of the same variety, some of which are much better than others. We have bought the same variety from two different sources; one lot would make excellent blooms and bulbs and the other would be a complete failure.

Every year a large number of new varieties are introduced at rather high prices by individual growers. These should be left for the commercial growers and hobbiests to try out. Some of these new introductions will become outstanding varieties available to the public at reasonable prices in a few years, but most of them will be discarded.

To guide the public in the best new varieties, "All America Gladiolus Selection," a non-profit organization was formed. To thoroughly test the new varieties, they are grown in all parts of the United States and Canada before being introduced. The first selections were introduced in 1956 with Appleblossom and Royal Stewart, in 1957 Maytime and Caribbean, and in 1958 Emperor. Royal Stewart is a large red, opens eight to ten florets on a tall straight stem. It has been outstanding for us. Appleblossom is white with rose pink edge. The first year we grew it, it was rather disappointing although this past year it made acceptable spikes. Maytime is a pink with white throat. It didn't do well for us, but we saw a very nice spike which was a division champion here at the Greeley show. Caribbean is medium size in light blue with throat of cream and white. It opens a long ribbon of nice florets on a straight spike. Emperor is a royal purple with light throat. We are looking forward to growing it in 1958. The All-America Selections are each patented to insure control of bulb quality, and are sold by all reputable dealers at uniform prices—the lowest ever for new introductions.

In planning your list of gladiolus you should keep in mind how they are to be used. The large and giant varieties are very effective when left out in the garden to bloom or in large arrangements or baskets. The medium sized ones are quite showy in the garden, but usually more effective in home decorations and arrangements. The small ones make excellent small arrangements.

The following is not a complete list of all proven varieties, but are the varieties that are reasonable in price and have been most outstanding for us.

WHITE—In the giant class we have found Silver Wings, a sport of Picardy, to be the most consistent for us, although it does have an occasional salmon petal. Heavily ruffled White Cloud with its huge pure white florets is most beautiful. In the large class for all around utility we like Florence Nightingale, and for a very early one an old timer, Snow Princess. Sierra Snow is attractive as well as big and tall. White Lace is lovely, medium sized, dainty and lacy. Crusader is a blotched white in the medium class.

Starlet is a small, waxy white on a straight willowy stem, wonderful for arrangements.

CREAM—Connie G, a giant with ruffled waxy florets, is still one of our favorites. Lorelei is still forty cents per bulb, but it is mentioned here as it has qualities of a great glad in the cream class. Cream Orchids—large, lovely ruffled style, truly named. Columbia has a lovely picotee edging of pink with fine spikes, a great joy to grow. Heart o' Gold is a nice cream with yellow lip and the earliest to bloom for us.

YELLOW—In the large yellows Howard V. Wright is a big sturdy glad and Lodestar a fine pure yellow. Aureole finds favor for its lovely color and ruffling. Spotlight, yellow with a red blotch, grows tall and nice. It has been very healthy and a fine grower for us although some commercial growers have discarded it as unhealthy. Dresden, a medium, is a lovely thing with ruffled florets. Its sister seedling, Statuette in the small ones is different enough that you will want to grow both.

BUFF — Pactolus in the large class is one of the most striking in the garden with its bold scarlet blotch. Figurine is the outstanding small buff glad.

ORANGE—Skylark is extremely bright and showy. Orangeade is a giant and quite unique in color. Daisy Mae is also a giant in an orange pink with cherry throat, of unusual color and a very good grower. Fireopal is a large brilliant orange. Little Gold in the small is unmatched for its glowing orange color, a real "California Poppy" shade.

SALMON—Chinook is truly a giant with exceptional color value. Dolly Varden rivals it in growth, but perhaps has a more attractive floret form with cream throat. Picardy is still a good grower and has excellent color after twenty-six years of being grown. Pharaoh is a strong grower of clear pink salmon. Boldface, a deep salmon with dark red feather on a white throat which makes it very unusual. Boise Belle with its long flower head of deep salmon and yellow florets is not as bright as Carmen Corliss, a ruffled beauty. Polynesia is a deep salmon and a strong grower. In the small glads, Pirouette is very good for arrangements and Peter Pan is an established show winner in this class. Bo-Peep is beautifully ruffled, a very good arrangement and corsage glad.

SCARLET—Red Wing and Red Cherry are very good scarlets and complement each other nicely in the blooming season. Carnival has a striking color contrast of bright scarlet and snowy white, a very good grower. Johan Van Konynenburg grows straight and is especially showy in the garden. Flashlight and Atom are perhaps the showiest and brightest of all the small glads.

PINKS—Pink Pride is truly gigantic in size with a beautiful flower head. Cotillion, while not one hundred percent consistent in stem and spike formation, has fine color and is a good grower. Spic and Span the top show winner should be grown by everyone. Friendship is a very good early pink, excellent for arrangements. Sweet Sixteen is a paler pink than Friendship and a later bloomer. Clarence D. Fortnam is the palest of the pinks in this class, but very lovely and grows well. Little Sweetheart is one of the prettiest of the small glads.

RED—Red Feather a giant, favorite deep red. Harrisburger is truly a wonder glad, marvelous color, one of our favorite red glads

this past season. Birch Red a large early bloomer. Red Charm is an old standard, medium red, seems to do well everywhere. Gremlin is an odd but interesting small glad, very good for arrangements; while Zigzag is the small exhibition glad par excellence.

BLACK RED—Dark David is a giant, beautiful dark red, although its huge florets will burn in the hot sun. No other black-red can equal Ace of Spades. Fifth Avenue is a small black-red that grows very well.

ROSE—Burma, a giant, is still very worthwhile to grow. Rosita is a large beautiful glad in contrasting tones of light and dark rose. Chamouny has a distinctive shade of cerise rose with silver lines. Lila Wallace, a favorite early, glad cuts well and you will love its bright color early in the season. Andrena is a delicate color of rose, lovely. Early Rose is of medium size, old and very early. Rosey Red, medium size dark rose, grows well.

LAVENDER — Elizabeth The Queen can be good; we now have a strain that does well. Noweta Rose may be variable in performance, but a well grown spike is definitely a contender for a championship. Brier, a deep lavender, does well and we particularly like it. Crown Jewel is another favorite we like because of the lavender and purple combination. Lavender Beauty has a lovely orchid color and makes very consistent spikes. Princess is one of the tops in all around utility. Wedgewood is a lovely medium lavender with cream throat along with Benjamin Britten, a deep toned lavender, old but still very good. Lavender Petunia, the combination of deep lavender and pure white, is entirely new in small varieties.

PURPLE—King David is an outstandingly beautiful royal purple and another of our favorites. There is Purple Burma, sport of Burma, heavily ruffled and more to the purple shade than others in this class. Sherwood was one of the first advances in the purple class and it is still very good. Royal Scot grows huskily in a different and attractive shade of purple. Fuchsia Maid a medium sized red purple.

VIOLET—Violet Charm, a violet lavender, is a reliable grower. We had excellent spikes this past season. Blue Boy, not tall, presents a nice blue effect.

SMOKY—Persian Beauty has a lighter veining on a background of rosy bronze, Dusty Miller a smoky rose background. Tan Glo, a smooth rosy tan without markings, makes tall perfect spikes.

ANY OTHER COLOR — The Roan is most unusual with conspicuously veined florets. South Seas is easy to grow and makes fine spikes and attracts lovers of deep toned glads. Embers we usually think of as light red, though its two-toned shadings make it entirely different from others in that group. Brazil, rich salmon smoky with crimson blotch, grows well.

You can increase your fun with glads by attending and entering one of the Gladiolus Shows which are held each summer. This is also an excellent way to see the varieties that you would like to grow in your garden.

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DRYING PLANT MATERIAL FOR ARRANGEMENTS

By MRS. H. D. DUSTON

There is only a step between the drying of herbs, fruits, or vegetables for food or medicine and the hobby nowadays of drying plant material for arrangements which in some instances has become big business. Decoratively, dried plant material has all the charm and intrigue of form, color, and texture fresh flowers have, and may be arranged to fit any decor with several advantages. Once a supply of dried material is prepared and stored in labeled boxes, one may create an arrangement any winter's day for any occasion. A dried arrangement with cool colors is refreshing in July, and warm colors may brighten a shadowy corner. Sometimes it is difficult to tell what is fresh and what is dry.

Roadsides abound in exciting material. The adventure of gathering from the wilds is not restricted to any season or place but only by good conservation sense. In June, gather dock *(Rumex)* when in green bloom. Its color varies in shades of rose, tan, and chocolate brown as the season progresses. When the goldenrod blooms, its complementary color in gay-feather *(Liatris)* is nearby. The sages lend delicacy of texture, neutral color, and pungent odor. Seed pods, cones, fungi, grasses, and so-called weeds need only to be stored.

The garden provides annuals and perennials in a wealth of colors and forms in the round, in spikes, branches, singles, clusters, and tiny florets. Long after their blooming season lovely lilacs, bleeding hearts, dahlias, and daisies can be enjoyed in arrangements.

There are several methods of drying leaves, branches, buds and flowers. Experience is necessary, and the process should be watched carefully to determine the best method and length of time required for materials of like textures.

Cut blooms on a dry, bright, warm day, when flowers are in their prime and the dew has dried. Some flowers dry well if placed in a container with a small amount of water and left untouched till dry. These are grasses, cattails, pussy willow, yarrow, and dock.

Others need to be stripped of foliage, tied in small groups, and hung upside down in a cool, airy, dark, dry basement, a closet, or a dim attic. Among these, you will find golden rod cut before full bloom, mullein, sage, grains, sulphur flower, teasel, celosia, globe thistle *(Echinops)*, gypsophila, statice, chives, and many others. Zinnias and marigolds may also be dried by hanging upside down, but the form and color is best preserved by the borax method or by oven drying.

Blend one part borax, which is purchased at a grocery store, with six parts of corn meal. Pour mixture into a box or pan until it is approximately three inches deep. Substitute a wire thrust through the calyx or head of the flower for the stem, and place the flower in its natural form in a depression made in the borax mixture. Gently sift more mixture over the flower heads until they are covered, holding the

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parts of the flowers in place. Put as many in each box as it will hold, being sure they do not overlap. Such light-textured flowers as sweet peas may be dry in one week, but heavy flowers such as lilies may require three weeks. Dried flowers are fragile, and they shrink, so prepare many more than you plan to use. From your garden, dry some daffodils, delphinium, carnations, lythrum, hollyhocks, larkspur, roses, daisies, pansies, gaillardia, gladiolus, centaurea, scabiosa zinnias, marigolds, and many others.

If fine, clean, white sand is available, use as in the borax method, baking in the kitchen oven at 90 degrees temperature for six to eight hours.

Foliage of all types is useful in arrangements and is usually pressed under weight, either between newspaper or in a heavy book. The thick foliage of magnolia, lilac, plum, apple, viburnum or kinnikinnick takes on a rich glossy color and is soft, pliable, and long lasting if treated in a glycerin solution. Dissolve one part glycerin with two parts water and place in a container. Crush or slit with a knife the woody stems, and place just the crushed ends in the solution. Two to three weeks will be required for the foliage to absorb the glycerin. More water may be added from time to time.

In making arrangements, floral tape may be used to cover wire stems, or a false stem may be added; plastic clay, pin point holders, or a deep container filled with sand will hold the stems in place. Shadow boxes, wall plaques, or landscape scenes may be created.

Delightful pictures inspired by the old-fashioned bouquets can be framed in mahogany, and a wreath made of native cones, nuts, and seed pads will be a cherished heirloom.

Reference—"The Complete Book of Dry Arrangements" by Rae Miller Underwood.

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ENJOY FRAGRANCE

By RUTH ASHTON NELSON

To a degree all gardens are scented gardens. A favorite odor to the genuine gardener is that of the moist earth when it is just right to work on a warm spring day. Have you noticed the delicate violet scent of the foliage as you work around violet plants? I am always delighted and a little surprised if I catch a whiff of it when the plants are not in bloom. Then there is the fragrance of the evergreens after rain or when they are clipped. Most of us do not get as much joy out of the possibilities of scented plants as we might.

Odors are the most elusive and difficult to define, measure, and classify of any of the sensations that we experience. In the first place our uneducated noses vary greatly in sensitivity. The dispersal of odors in the atmosphere is affected by temperature, humidity, and air movements. Different plants give up their fragrance in response to different stimuli — some must be bruised, others make their presence known under the influence of warm sunshine or gentle rain. Some flowers release their perfume only at night, others in the daytime. To get the most pleasure from garden scents one should keep these facts in mind.

Several plant families are notable for having many odoriferous members. The pine family is one with which we are all familiar and all of us may have some of its members in our gardens. Pines, junipers, arborvitaes and others furnish pleasant scents both outdoors and when used inside.

The parsnip family is full of aromatic plants. This includes many of our seasoning plants and some table vegetables. In addition to carrots, parsnips, celery and parsley, there are dill, caraway, anise, fennel, chervil and others. Most of these plants have lacy, attractive foliage.

The mint family is one whose members may often be recognized by their aromatic leaves. Here we find more seasoning plants and perfumers such as thyme, the various mints, sage, savory, hyssop, lavender, rosemary, beebalm *(Monarda),* and oreganum.

Still one more family has many members with strongly odorous foliage or flowers or both. This is the sunflower family. Many of these are heavy scented and unpleasant to some people. We know in our gardens asters, chrysanthemums, dahlias, calendulas, marigolds, zinnias and numerous others. In the wilds there are literally thousands of them. Some are disagreeable weeds like dog-fennel and tarweed. One is the seasoning, tarragon. Others are old-fashioned remedies as arnica and wormwood. One I like is pineapple weed, *Matricaria matricarioides,* somewhat like dog-fennel but instead of a disagreeable odor it gives off a refreshing pineapple aroma when walked on.

For those who like aromatic, pungent odors there are several species of artemisia, both native and introduced, which can be easily grown. In European gardens our western sagebrush is prized very highly. Most of these, in addition to providing aromas have very interesting white or gray foliage. The common native "fringed mountain sage," *Artemisia frigida,* is lovely

as a border or used among gaily colored flowers in a sunny rock garden. Shear it when the flower stalks grow tall and it will send out fresh silver fringe—but it should be replanted after a year or so when it becomes stringy. The *Monardas* furnish both color and delightful fragrance. The native species, *Monarda fistulosa,* makes a handsome clump of rosy lavender when in full bloom and all season its aromatic leaves are enjoyable. The little creeping or tufted things like thyme and nepeta that are happy in crannies of stone walls or nooks between stepping stones, appeal to me. When they are brushed against or trodden on their fragrance arises to refresh the gardener.

It seems evident that scents are not as all pervading in this dry windy country of our west as they are in the more gentle atmosphere of the southeastern states and in England and Europe. Also it is believed that strains of scented varieties differ in the intensity of their odors according to the soil or other conditions under which they are grown. Scented gardens seem to have received more attention "back East" or in "the old country" than here but a little thought given to establishing some aromatic or fragrant plants and then to consciously enjoying them, will prove well worth while.

WHAT'S NEW?

By PAULINE ROBERTS STEELE

Gardening used to be hard work. Now we have modern tools, machines and chemicals to take repetitious drudgery out of it. However, the latest and certainly one of the most helpful things is the convenient and easy packaging of our dusts and sprays. There is the one-hand squeeze duster package. With it you can dust those roses with hardly any physical effort. It took a good deal of studying to move from a paper bag to a pressure-package or a squeeze duster.

With a squeeze duster, or a pressure package, or "aerosal bomb" all ready to use, phlox, delphinium, and roses will get that spray or dust more often and when they need it. Push-button control of diseases as well as insects is a long way from the mixing, pumping, and spraying of the bygone era. Herbicides are packaged in convenient pressurized containers so that weeds can be attacked the moment they appear. The aerosol package for weed killers eliminates the need for a special sprayer.



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Seasonal Suggestions

June marks the beginning of summer with vacations, picnics, and fishing, all in order. In the garden it marks the beginning of fine flower displays, insect activity, lawn mowing, and other activities.

June is also a month for roses. They are at their peak at this time although they will continue to put on a good display until fall. Since roses are so popular, here is a suggestion or two on their care. Two insect pests, the aphid and spider mite, try their best to mar the beauty of the rose. Watch new buds and young leaves for aphids. They are usually green, sometimes brown, and are easy to see on close inspection. Mites on the other hand are minute and difficult to detect. However, if the older foliage begins to discolor and have a mottled appearance, chances are that these mites are at work. Spraying every two or three weeks during the summer months will keep these pests under control.

Another important factor in growing roses is proper fertilization. Because they are heavy bloomers, they are also heavy feeders. A light application of a commercial fertilizer about the middle of June will help produce more and better flowers. Speaking of roses, try to attend the Denver Rose Society's annual Rose Show, June 22, at the U.S. National Bank in the Mile High Center. This show is open to the public from 2 p.m. to 5 p.m.

Of course roses aren't the only flowers that bloom in June. Annuals such as petunias, zinnias, and marigolds give us a lot of color and gaiety. Iris, lupines and delphiniums start off the bloom cycle in a well-planned perennial garden. If you don't have a garden that has color through the growing season, now is the time to get out and see other gardens. In this way you can make notes and get ideas for your own garden. You'll have an excellent opportunity for this on the first Look and Learn Garden Tour on June 11. This tour will take you to the East Park Hill section of Denver. Here, at leisure, you can visit both new and old gardens and ask questions of the experts who will be present in each of the gardens.

If you are old fashioned and think that the planting season for trees and shrubs ends the 15th of May, it's time to modernize your thinking. Container-grown material now makes it possible to plant all summer long. You'll find all your local nurseries have a good supply of container-grown trees and shrubs. You will also find they have some unusual plants, previously difficult to transplant with bare roots, which establish themselves nicely from containers, since the roots are not disturbed at all in planting.

In speaking about roses, spider mites and aphids were mentioned. These two pests aren't fussy in their feeding habits. Vigilant care of all the plants in the garden is necessary. Be particularly careful of evergreens which can be damaged considerably and quickly. The best check is to vigorously shake a branch from the evergreen in question on a sheet of white paper. Look closely at the paper under strong light and, if you see tiny specks moving around on it, spray immediately with malathion. Numerous other insects are bound to make their appearance this month. If they are unfamiliar, call us here at Horticulture House, TAbor 5-3410.

With all the moisture this spring, weeds will be a continual problem—2, 4-D and 2, 4, 5-T in combination give effective control of most broad-leaved weeds. You may have to apply a weed killer several times on some of the tougher ones. Crabgrass control with new liquid chemicals should be applied right now.

Vacations, picnics, and fishing are worthy of repetition. Try to plan a weekend trip or two into the mountains. Wild flowers should put on a spectacular show this season with such an ample supply of water. Don't forget to carry a litter bag for your car for trash. Let's keep Colorado green and *clean*.

—Pat

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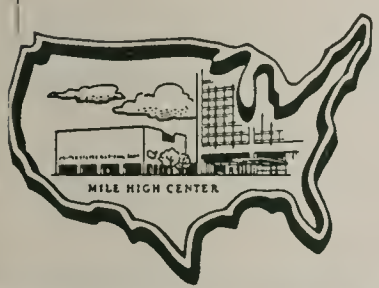
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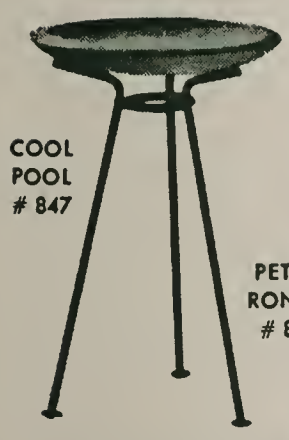


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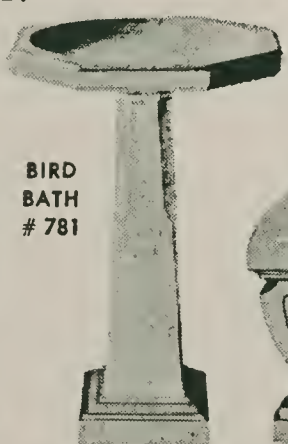
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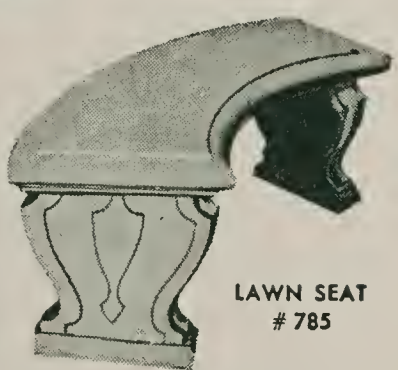
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Vol. 15 JULY, 1958 No. 6

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ARRANGEMENT OF THE MONTH

Zinnias, floribundas, Queen Elizabeth roses, red plum leaves, pink snapdragons, and petunias form this prize winning triangular arrangement that might be typed as Conservative Modern. Mrs. Alonzo Lilly is the artist. Her skillful color contrast and blending of mass and line won her a silver cup in the annual competition between members of the Garden Club of Denver. The container is white pottery, classical in design, on a simple black wood base.

Conservative Modern allows more flowers and greater variety in a grouping than a strictly "line" composition, yet, the completed picture still has the airiness and clear outline of line work. Here the best of both mass principle (solidarity and richness) and line are happily blended.

July is a particularly good month for flowers. Nearly all the ones shown in the above arrangement bloom in profusion this month and with great variety of color for artistic composing. Now is the time, too, to dry specimens in borax for winter bouquets or to gather blooms for pot pourri. Reprints of the borax method are available at Horticulture House.

Arrangement by Mrs. Alonzo Lilly.

Photo by Jack Fason.

The following story won first place in our writing contest, "How I Landscaped My Backyard." Second prize goes to Margaret Bivans of Boulder, third prize to Mildred Wilbanks, and honorable mention to James Stewart, Clayton L. Greenleaf, and Elmer Shaw. All the stories will be published in forthcoming issues.

THE THINGS NOBODY WANTED

By WES WOODWARD
(1923 So. York St.)

We bought the place to get the tree. It was a huge old weeping willow that spread over the small backyard and trailed branches to the ground. After years in tiny apartments we felt that the world was ours when we got that tree.

The old house had been rented for years to families with many children and dogs and the barren yard was abandoned. There were some dandelions and plantain, some bare clay littered with broken bottles and trash. Two dead poplars tangled with the power wires, a scraggly peach grew tight against the house, a boxelder leaned over the broken clothes line. A broken ash-pit spilled ashes, bricks, and cans into the weeds. A rusted water tank lay in a puddle of water by the garage. Across the alley stood a huge grey shed. It was hopeless—but it was shady under the willow.

We came in April and nothing was green except the willow leaves and the weeds. There was no money for plants or fertilizers but there was faith in work and a love of nature. We went to work eagerly. Somehow, we were going to make the place beautiful.

We worked in the morning and we worked in the evening, and on Sunday we got in a good twelve hours. There was no planning—we didn't know about that. We bought a hose, a handful of grass seed, a spade and a rake. Day after day the trash was raked and hauled off and the ground was spaded—hurriedly. The dead poplars and the boxelder were cut down. Hollyhocks were saved. A clump of day lilies was moved from the front step to the side of the garage. When the grass seed ran out we planted marigolds.

Our own boys played ball in the newly-planted lawn and chased our own dog through the seed beds. We worked and watered and watched and by summer we had some spots of grass and great masses of golden marigolds. Once a week we gave the willow a "hair-cut" and mowed the lawn even though it didn't need it. And we sat in the shade of our tree and admired our work.

The work went on. The scraggly peach was moved into the open, but soon died. We hauled off the ashes, and tore down the old ash-pit, using the bricks to make little walls around the flower beds. Garbage was spaded into the ground and in the fall all the leaves we could find were carried to the yard and spread on the sterile soil. The neighbors, seeing our prodigious labors, offered iris when they thinned, and a couple of droopy spirea, a poor climber rose, a spadeful of shasta daisies. All these were gratefully accepted and tenderly placed and solicitiously watered and watched. Some of them grew.

We sprayed the lawn to kill the

weeds and began to dig into the patches of crab grass and to pull out the yellow-flowered clover. We trimmed the willow, and sat in the shade.

It went on like that, year after year. Nothing was done according to the books. Our plants were the ones other people wanted to get rid of. There were more iris, some mint, goldenrod, some sumac, a mock orange, a nameless bush with red bark, an ancient forsythia. Sprouts around the lilac were dug to make a hedge at the back of the lot. The day lilies were separated until we had a good bed along the north side of the garage where nothing else would grow. Sweet alyssum was started for the borders. The marigolds continued to thrive. Years of spraying and digging got rid of the weeds in the lawn and a little ammonium sulphate turned it green. And each summer we trimmed the willow and sat in the shade.

It was like that for five years and then the upper branches of the willow began to die. Long grey limbs swung with the wind and crashed to the ground, tearing holes in the lawn and flower beds. Finally we had to have the tree removed. Then, we found, the whole glory and charm of the backyard was gone. We had a great open space, a torn-up lawn, a straggle of flowers around the edge.

By that time we had come to definite ideas of what we wanted that yard to be some day—a plan for a patio, a vista, a rose garden.

We began again; moving the treasured plants to their new locations. A fence was built around the yard. There were more gifts: a spindly peach and runty apple. They were placed where they would, some day, shade the future patio. Old roses — the kind that bloom only once—were added to the array in front of the garage. We began to take out some of the once-precious iris and to pour peat moss into the flower beds. Our oriental poppy had become five, and the tulips and daffodils had multiplied.

After eight years the yard was full and many old friends were removed and some new ones came to stay, like the two tiny blue spruce and one spreading juniper brought back from a camping trip.

Now, it is incomplete, but the yard has a feeling of order, and a quiet atmosphere of old and well-loved plants at home, and a rich greenness in the summer. There are no fine plants from the catalogs, no exotics, no expensive trees. Just the familiar things, the things nobody wanted: mint, black-eyed susans, goldenrod, four o'clocks, moss roses, a pussy willow grown from a sprig David brought home from Sunday School. Descendants of the original marigolds and hollyhocks still bloom in the summer sun. And now, sometimes, people come to this old garden, and mention that it's bright and cheerful, and somehow strangely comfortable.

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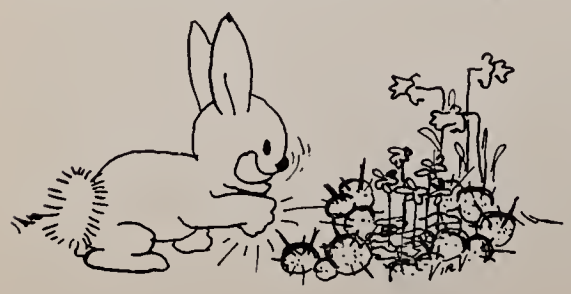
WESTERN INGENUITY



By ROY LEE

An undisputed postulate is "A weed is an unwanted plant." The prickly pear in our pasture definitely came under that head. It was not just unwelcome, it was positively disliked, especially by the horses because of its belligerent character. The way it seemed to thrive on various weed killers added to its unpopularity.

Picking prickly pears can be a touchy job. It has to be done with discretion. Pears resent being disturbed. But an asparagus knife and kitchen tongs can keep the contact formal. Once dug up, there remains the problem of where to put these weeds with teeth.



However, problems never come singly on a miniature ranch. Cottontails have a liking for young fruit trees in the winter and for fresh young columbines and painted daisies in the spring. Then the happy thought struck us that we could limit the diet of the bunnies and use the prickly pears by dropping the latter where we didn't want the former to lunch. That is why you will see a peculiar mulching in certain spots on our place with an unwanted plant performing a valuable service.

Someone told us that one wire properly placed would restrain a

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horse. But he never met our ponies. They could eat mulberry leaves in spite of a spool of barbed wire, in a way that would make a silkworm blush. They could gracefully throw a head over the fence to munch on sweet peas and succulent goldenrod. They didn't mind a few barbs. But when we decorated that fence about six feet up with bristling prickly pears, our flower bed was ignored by the horses. One inquisitive nose was enough to convince





Blackie or Shorty that the nice green grass, even if it were on their own side, was plenty good enough.

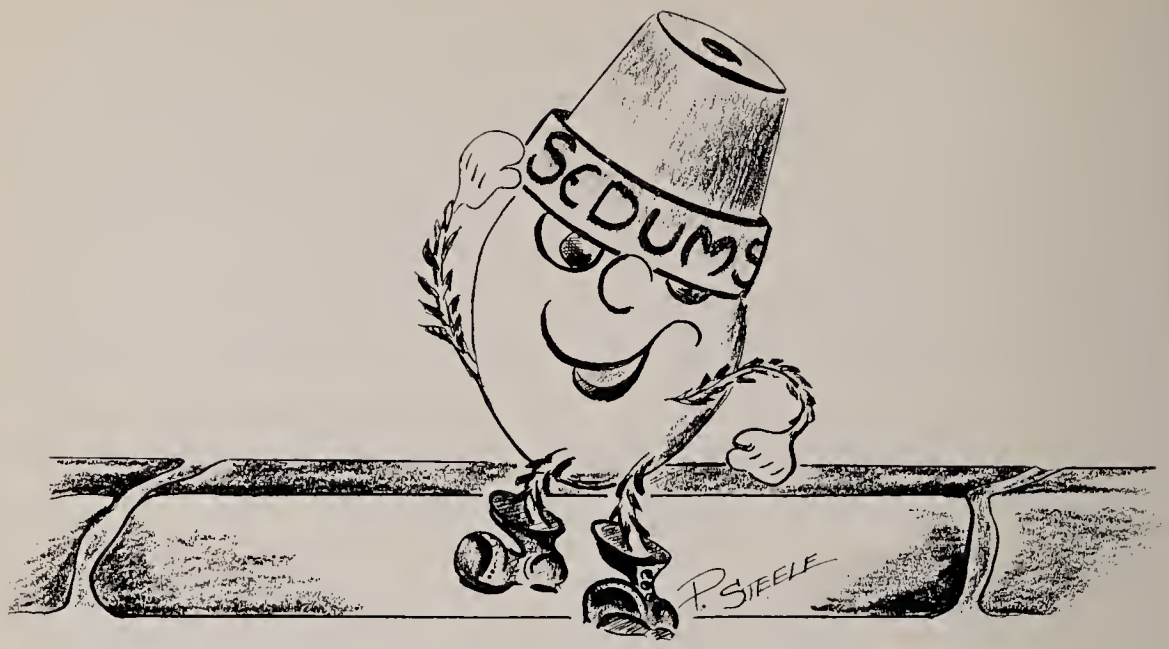
Also we have some very old apple trees just full of holes where certain birds homestead in the spring. The flickers, especially, like to chip out a new room and set up housekeeping. Often passing cats would exercise their well known curiosity by investigating the whir-r-r-r in the holes. But not any more. There are "necklaces" of prickly pears draped under the occupied apartments and kitty loses interest when she reaches the ornaments.

Some people think that prickly pears, in addition to looking hostile, are unshapely in appearance, but to us, when in certain strategic places, they are nothing short of beautiful.

Water in imitation of nature should be in ponds or basins of irregular shape; but always so contrived as to display one main feature or breadth of water. A pond, however large it may be, if equally broken throughout by islands, or by projections from the shores, can have no pictorial beauty; because it is without effect and does not form a whole.

From *Ladies Companion to the Flower Garden* 1859

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"HUMPTY - DUMPTIES" OF THE PLANT WORLD

By BERNICE E. PETERSEN

Sedums, the "Humpty-Dumpties" of the plant world, provide variety in texture and height, interest in foliage coloring, and distinctive star-like flowers; they satisfactorily fill some of the most difficult planting situations for the discriminate gardener.

Derived from the Latin meaning to sit, in allusion to the way they grow on rocks and walls, sedums seem ideal plants for this semi-arid region. Their chief requirements are good drainage, poor soil, and a minimum of water. Generally, cuttings root easily; in fact, a fragmentary piece of the original plant may tumble, root, and thrive with little or no care. Yet, sedums seldom become pests since their shallow root systems mean easy eradiction.

The family's ability to withstand extreme conditions of drought is explained by the fact that by weight some sedums contain over 97 per cent water.

Color in the little fleshy plants runs from yellow-green to Kelly-green to blue-grey; some have variegated foliage; others, deep red. One variety's coloring is so changeable its name is chameleon. Another has the appearance of a cockscomb. Still another resembles strings of silver coins. Their height varies from the ground-huggers, which are custom-designed for step-plantings and plantings between flagstones, to the border and small hedge plants, one to two feet high.

The first and probably most complete treatise on sedums, "An Account of Genus Sedum as Found in Cultivation," prepared by R. Lloyd Praeger, was published in May, 1921, in the "Journal of the Royal Horticultural Society." (A rare paper, this 314 page booklet may be borrowed from the Helen Fowler Library at Horticulture House.) In his account Mr. Praeger enumerated and described approximately 300

named species of the genus growing throughout the world. Contributors to his collection included the late D. M. Andrews of Boulder and E. R. Warren of Colorado Springs. Today, named varieties of sedum number almost 700.

Although many varieties from warmer climates cannot survive Colorado's extreme fluctuations in temperature, Harry Keele, a sedum hobbyist and fancier, has spent nine years experimenting with sedums from many parts of the world including Japan, India, Switzerland and England. At present he has 90 varieties growing in his rock garden and propagating beds at 814 Julian Street in Denver. He delights in seeking out new sources of seeds and plants and testing their adaptability for growth with and without protection in this area. A propagating bed under the grape arbor provides necessary protection for some of the cuttings of choice but less hardy varieties. Each variety is segregated and identified with a metallic tag giving the plant's botanical name as well as place of origin.

Doubtless the two most universally-grown and appreciated species are *spectabile* and *sieboldi.* As the name indicates, the plants of *spectabile* are spectacular with varieties obtainable in white, pink, red and deep red. All grow 18 inches to two feet high with opposite oval leaves in whorls of three.

Sieboldi, which thrives best in partial shade, is a cliff-dweller in Japan. A shrub-like perennial about 8 inches high, its one-inch leaves, also in whorls of three, are greyish-green in color with a red margin—similar to strings of silver coins. According to Mr. Keele, two unobtainable choice varieties are one with a gold dot in the middle of the leaf, another with a margin of gold. (Sounds like a beautiful necklace from Tiffany's.)

Similar to *sieboldi* is *cauticolum,* with two leaves opposite, which grows in tiny greyish-blue rosettes. Mr. Keele is striving to produce one with a greater margin of red. *Anacamperes,* more serpentine-like than *sieboldi,* has purple flowers. Favorites are *pluricaule,* a miniature version of *sieboldi,* only 2 inches high



Nodding-headed reflexum, Linn.



Common Acre. Often used between stones.

and an unnamed variety with deep pink flowers, very hardy, which grows to only three or four inches.

Since evergreen plants are especially desirable for year-round interest in the garden, Mr. Keele pointed out those varieties which have proved hardy:

Acre, mossy stonecrop, very hardy and common, forms a dense carpet, with alternate small triangular leaves, bright yellow flowers in terminal clusters, especially suited to dry places.

Acre Minor, tiny variety and better than common *Acre.*

Dasyphylum, var. *glandulierum,* from Europe and North Africa, appears as dainty green rosettes, with white flowers about ¼ inch across. It has withstood temperatures to 30 degrees below zero and remains very beautiful.

The species, *spurium,* plus its varieties *album, roseum* and *coccineum* (red) are strong growing, quite common in this area, their foliage varies from light green to reddish brown.

The little lizard of the sedums, *reflexum,* v. *chameleon,* is the only one of the *reflexums* which is evergreen. All nod their heads until ready to bloom. Incidentally, *reflexum* v. *cristatum* is cockscomb.

Wormgrass, or *Sedum album,* dies down in winter but the variety *murale* retains its leaves throughout the year; its foliage varies with soil conditions from reddish bronze to purplish. Supplementary feedings will turn it almost black.

Sexangulare is similar in appearance to *Acre* but close examination



Reflexum var. chameleon



Sedum reflexum var. christatum (Cockscomb)

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reveals leaves arranged to form six angles on the stem. It is not the "Happy Wanderer" that *Acre* is.

Middendorffianum. v. *minus,* which resembles a rock rose in appearance has orange, brown or red foliage throughout winter. *Rupestre* and *stoloniferum* are both fine evergreen creepers.

Yellow stonecrop, *stenopetalum,* a Colorado native from plain to timberline remains evergreen. Rose Crown and Kings Crown, found only at higher elevations, need protection to survive.

Other interesting sedums include *atropurpureum* which provides contrast with its deep red foliage and cream flowers. *Sedum populifolium,* with a leaf like a poplar, comes from the home of exiled Russians and, to Mr. Keele's knowledge, bears the only sweet-scented flower in the genus.

Although the varieties mentioned are only a portion of those flourishing in the Keele garden, they do prove that with only a few rocks, a minimum of water, and a desire for the unusual in difficult situations you, too, can have a "great fall" for these charming "Humpty - Dumpties."



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THE LOW-DOWN ON SPRINKLING SYSTEMS

By LAWRENCE KEESEN

PART I. GENERAL INFORMATION

Lawns baked hard by hot sun and compacted by foot traffic need air and water desperately. Precious water runs off, little getting to the roots. Such lawns may be made bright and beautiful through aeration. This process allows the roots to breathe, helps water soak down to the roots, thus making every drop work for a brighter, greener lawn.

Water is essential for life as we know it. It is the basic building material in plant sugar and starch manufacture. To enter the plant root system all nutrients must be dissolved or ionized in water. Water maintains the shape and freshness of the plant. Plants pump through their systems from 250 to 800 pounds of water for each pound of dry plant material produced. Soils with well balanced, high nutrient levels, produce maximum yields when given an adequate supply of water.

Nature supplies water to the plant by rainfall, surface run-off, and underground percolation. Some areas have sufficient rainfall, but not always when it is needed most. In desert and semi-arid climates such as ours, irrigation is the only means of supplying the necessary water for agricultural production. Quality and quantity of crops have been increased greatly in every geographical area by sprinkler irrigation.

The objective of sprinkling is to apply water to the soil and plant in such a manner as to achieve the greatest continuous net profit over the longest period of time, and to conserve water resources by *efficient application.*

To evolve a history of lawn irrigation as we think of it today will take us back to the early 1900's when a man named W. A. Buckner was chief dispatcher for the Santa Fe Railroad in Fresno, California. His off time hours were spent in his home workshop experimenting with the idea of man-made irrigation that could be applied at will with a minimum of effort.

In those days the only sprinklers available were small hollow rings with holes punched in them and made to be attached to a garden hose. The inventor was persistent in the thought that a better method of irrigation was not only a possibility but a necessity.

In 1912 his first sprinkler was patented and a working model of it was made that same year in Cincinnati, Ohio. Shortly after receiving this first model, Mr. Buckner had a call from a group of engineers in San Francisco who had heard of his project. It developed that they were trying to engineer a sprinkler system for the Pebble Beach Golf Course, then under construction, and they wanted a demonstration of the new Buckner sprinkler. A meeting at the Del Monte Hotel eventually resulted in the world's first *hoseless* golf course irrigation system and Mr. Buckner was officially launched into the sprinkler business.

Beginning with one item in 1912, the company now manufactures over 130 different sprinklers and related items. They range in price

from $1.00 to $175.00 with area of sprinkler coverage ranging from a 16 feet diameter to a 375 foot diameter.

The business has continued to grow from its very onset. The company's head office and manufacturing facility is in Fresno, California. It has some 50 franchised distributors in the U.S. Buckner's export manager in New York has shipped Buckner products to over 47 different countries. A Buckner affiliate in Sidney, Australia, manufactures and distributes sprinkler equipment in Southeast Asia, New Zealand, India, and other far eastern countries.

At the start of the business, the founder farmed out all of the manufacturing. Today the company starts with the raw materials and terminates with the finished product in plants under its own control.

From a modest beginning Buckner has risen to a leading position in the world of sprinkler irrigation. This brings us to the present 5 year period when the popularity of automatic sprinkler irrigation has enjoyed a greater increase than the total 25 years prior to that. This rapid increase in the popularity of lawn sprinkler systems (as is frequently the case with new industries) has been accompanied by two developments—1) lower prices and better values by responsible contractors on the one hand, and 2) an increase in the number of fly-by-night and irresponsible operators on the other.

"Here today — gone tomorrow" is an old saying that is particularly applicable to many firms and individuals who have contracted with homeowners to install lawn sprinkler systems one day and folded up and disappeared the next—or a few days or weeks later. As a result, some homeowners find they paid part of their money in advance for installations that were never completed. Others have discovered, too late, that they have paid for inferior workmanship and materials and that entire jobs must be done over. And still others, confronted with sprinkler system failure due to defective parts, find they are unable to replace or repair them with standard items.

All such cases represent losses to homeowners which could have been avoided. Since city codes frequently afford no protection to the homeowner in regard to standards to which he may refer, he is therefore "on his own" insofar as protecting himself is concerned.

The following points, therefore, should be helpful to homeowners: BEWARE of the irresponsible contractor who would stake his "reputation" on untried material and unhesitatingly use you as a "guinea pig." He has nothing to lose—*you have*. Do not buy sight unseen. Insist on a scale drawing of your own property. The custom design should show head locations, valves, a complete piping layout, pipe sizes, and be encircled to denote coverage. This is your only means of getting what you pay for. For your own protection, tie this plan into your contract. Review this plan with the contractor, then reach an agreement on the scope of the work. It's like building a home—there must be a meeting of minds on size and kind before cost can be fairly determined. Be certain then, that the conditions you have in mind are clearly stated in the contract before you sign your name.

BEWARE of the word guarantee when used loosely. "Lifetime" or

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"Forever" guarantees usually are fantastic and impossible of fulfillment. Even a 5-, 10-, or 25-year guarantee may be conditional to such an extent that it loses all practical significance. The standard guarantee of the industry unconditionally covers defective workmanship or material, performance, maintenance, and full coverage for the period of one year.

BEWARE of inaccuracies in system plans which sometimes are drawn by an inexperienced transient operator. His brand of engineering is by rule of thumb. This method fails to take into account the fact that the system must be designed to operate on below-normal pressure to meet summertime fluctuations. For your protection and to safeguard their own reputation, reliable contractors employ full-time engineers especially trained in sprinkler system hydraulics. You benefit from this professional engineering service without incurring any obligation to buy.

Last of all, beware of the low bidder. Remember, he is bidding on specifications of his own making. It was *Ruskin* who said: "There is hardly anything in the world that some men cannot make a little worse and sell a little cheaper; and the people who consider price only, are such men's lawful prey."

HOW TREES AND SHRUBS REDUCE TRAFFIC NOISES

Properly planted trees and shrubs reduce traffic noises and fumes, and prevent headlight glare. Heavy street traffic has 70 decibles of sound. Proper landscaping can reduce the noise up to 60 per cent, according to the U. S. Bureau of Public Roads. If the landscaping cuts the traffic noises in half it will reduce the noise of a heavy traffic area practically to that of a suburban street in the quiet evening which is measured at 30 decibels of sound. In the lower left, a median planting eliminates headlight glare, one of the causes of accidents.

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STATELY SPIRES FOR SUMMER BORDERS

By MAUD MCCORMICK

For the back of the perennial border, it is hard to find anything to match the tall columns and stately spires of the newer delphinium hybrids. Foxgloves and foxtail lilies are magnificent; hollyhocks and Kansas gayfeather furnish midsummer bloom in gardens to which they are adapted; goldenrod and perennial fall asters are autumn beauties. None of these, however, have the range of color or the long season of bloom that the incomparably beautiful hybrid delphiniums now have.

Snowy white or the blue of the summer skies, purple or pastel pink and lavender, the tall spikes grace the early summer border with roses and Madonna lilies and yellow hemerocallis hybrids.

Bloom from fall-sown seed appears soon after the spikes from established plants are cut down, and, together with second bloom in chrysanthemum time, leaves the border without delphiniums only a short period in the heat of midsummer. Besides, since most of the newer hybrids have non-shattering petals, they provide magnificent cut-flowers for weddings and other formal displays.

The three-inch double florets make exquisite corsages and miniature arrangements, and the laterals are graceful and charming in more informal bouquets for the home. Delphiniums, in short, are indispensable over the large area in which they can be grown.

In localities where nights as well as days are hot, July and August are seasons of dearth for delphinium bloom. Where winter rest-periods are short, too, the plants are shorter of life. Gardeners in southern Missouri have written me that they must regard the plant as biennial since midsummer casualties are so many. Frank Reinelt, whose field of Pacific hybrids make such glorious displays at Capitola, California, says that the life of a healthy plant depends largely on the length of its winter rest.

Climates can hardly be too cold for delphiniums, however, as travellers testify after seeing the magnificent bloom produced in Alaska during the extremely short seasons. In Saskatchewan, Canada, far north of Montana, a delphinium lover writes that winter protection does more harm than good, as it probably does anywhere that snow remains on the ground all winter. Mulching to *keep plants cold* is desirable wherever alternate freezing and thawing heaves the plant out of the ground, but never as protection against the cold. Even fresh seed germinates best when nights are cool, and winter seems to have little effect on small volunteer seedlings clustered about a mother plant.

Only from the very best hand-pollinated seed, however, or from crown-cuttings or divisions from superior plants can the finest of bloom be expected to come. Plants from cuttings are far more extensively produced in England than in our own large country, where seed may be safely mailed long distances, though plants might suffer in transit. Gardeners who grow fine plants from seed can improve their own

strains by crown-cuttings from individual plants, however, thus achieving exhibition plants of superlative quality.

"Anyone who can grow radishes and onions can grow delphiniums from seed," said Carl Grant Wilson, one-time President of the American Delphinium Society. The statement is true, of course, provided that fresh seed is handled as it is by nature. That would mean scattering it on top of the soil, scarcely covering it at all, and leaving it to germinate in the very early spring. Even then it would be well to enclose the seed-bed and to keep out animals by screen or lath frame.

Most of us, however, do not handle seed as nature does. We may sow freshly matured seed in August in order to have sturdy plants for midsummer and fall flowering the next year. If the days are humid and nights too warm, we may lose a whole planting from the dread damping-off disease. Dusting seed with a fungicide like Semesan or Cuprocide dust helps to prevent it, and giving the frame or flat ventilation is as imperative as keeping it moist and dark until germination takes place. After plants appear, lath frames provide sufficient protection from strong sunshine and winds, dogs digging holes, or squirrels burying nuts. Plants so handled have excellent root-systems and are ready to start growth in the border as early in spring as they can be transplanted. Grown in ordinary light soil, such seedlings need no special treatment; in flats of a sterile medium like vermiculite, sand, or sphagnum moss, the tiny seedlings must be transplanted into soil as soon as true leaves appear, or fed a liquid fertilizer regularly.

Gardeners who do not want to bother with growing their plants from seed may, in many localities, now buy seedlings or year-old plants. Sometimes they may even select clumps in bloom and transfer them, balled and burlapped, to their own borders to finish their bloom-cycle. Many growers are beginning to produce large plants in pots to meet such demands, but it is quite unlikely that plants so grown will live as long or thrive as well as those whose unconfined roots anchor themselves where they will in fertile soil and remain undisturbed during the mature life of the plant. They do, of course, provide unparalleled beauty to the garden at a minimum expenditure of time and trouble. And, however it may be achieved, the beauty of delphinium spires in the garden is unforgettable.

In conclusion, here are a dozen delphinium do's and don'ts.

1. Do get fresh, hand-pollinated seed in July or August. Sow at once if nights are cool. Elsewhere keep cool in air-tight container until ready to sow. Then freeze 48 hours before planting.
2. Dust with fungicide to prevent damping-off. Sow thinly and cover lightly.
3. Keep seedbed dark and moist until germination takes place. Ventilate often especially in humid weather.
4. Remove coverings when plants appear, but shade seedlings partially until they are sturdy enough to bear full sunlight.
5. Leave untransplanted until ready to put in permanent location if you have them in outdoor seedbeds of garden soil. Transplant as soon as true leaves appear if you have used a sterile medium, or feed regularly with liquid fertilizer.
6. Place crown or growing tip at ground level or a little above when you transplant. Deep burial kills live plants as well as seeds.
7. Put in permanent location in earliest spring. Have soil deeply dug,

moist, well-enriched, and well-drained.

8. Give plants plenty of room, air, and sun. Crowding encourages pests and disease.
9. Practice clean cultivation and, when water is needed, give thorough soakings.
10. Stake before spikes have grown too tall. Mark plants while in bloom if you plan to increase vegetatively.
11. Cut back after blooming, let rest for two weeks, then give feeding of commercial fertilizer, water thoroughly, and let growth start.
12. Mulch where necessary after ground is frozen. Use sand or coal ashes on crowns to lessen danger of heaving and to discourage slugs and cutworms in the spring.

SHORT DAYS INCREASE BEGONIA TUBERS

More about Photo-periodism.

Recent experiments with dahlias and tuberous begonias have shown that the weight of their tubers can be much increased by the simple device of shortening their days from the end of July to early September. Plants were covered with mats from 5 p.m. to 8:30 a.m. next morning. In some cases the weight of the tubers increased five-fold.

Studies were made by Dr. J. Wasscher at Aalsmeer, Holland, as published in the Dahlia Year Book of Great Britain, and an article on begonias by M. Franz Peeters is published in the current issue of Revue Horticole.

If any readers of The *Green Thumb* are doing work on short-day plants or long-day plants, we'd like to have them tell the rest of us about their results. Amateurs can do much to help on collecting knowledge in this very new and fascinating field.

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MUSHROOMS IN THE COLORADO ROCKIES

By ERIKA H. SCHRAMM

Most nature lovers enjoy our Colorado wildflowers. They often drive more than 100 miles on nice summer weekends to see our beautiful columbines and hike for hours to get above timberline not only to enjoy the scenery, but to find a variety of the loveliest and most colorful alpine flowers. But hidden under aspens, spruce and pine trees, between moss and grass, we find a variety of mushrooms just as colorful and beautiful. But how often have I heard people mysteriously whisper "look at that big toadstool." Mothers warn their children not to touch the "toadstool" because it might poison them. This was often quite amusing for me because in most cases the big "toadstool" with its red or brown cap was either the *Boletus edulis* or *Boletus versipellis* and ended up in my skillet and proved to be a delicious supplement to my meal—one mother nature provides free which is just as nutritious as the best vegetable and rich in minerals and protein.

For me, being born and educated in middle Europe, it was quite a surprise to find the same mushrooms in Colorado as I used to find in the Black Forest, Erzgebirge, and Alps of Germany, Austria and Switzerland at a latitude much further north, although in summer, precipitation and climatic conditions in middle Europe are similar to those in higher elevations of our Colorado Rockies and favor the growth of mushrooms, particularly along streams and gentle wooded north slopes which have accumulated a thick layer of humus soil.

Most fungi live on dead plants, and a few are parasites feeding on living plants. What we know as the mushroom is only the fruit of a tangled thread-like fungus plant called mycelium which lives underground or in rotten trunks or living trees. Moisture encourages the mycelium to grow and develop fruit.

A few deadly poisonous species of mushrooms can also be found in this area. Most of them belong to the *Amanita* family and unfortunately resemble the cultivated white market mushroom of the *Agaricus* family, particularly when in the immature button state. After the *Agaricus* is grown up to full size and has opened its cap, the pinkish grey or greyish purple gills on the under surface and the faint scent resembling anise distinguish it from the Death Angel *(Amanita virosa,*



Agaricus

phalloides, and *pantheria)* which has absolutely white gills, the stem a basal cup and an unpleasant odor, or no odor at all. Unless you are absolutely certain and learned on how to distinguish all *Amanita* species from the various kinds of *Agaricus,* I would advise you not to pick them, tempting as they may appear. There is no rule which can be laid down and no test such as putting a silver spoon or an onion in boiling mushrooms to help you in the discrimination of poisonous species from nonpoisonous.

Every nature lover admires our most colorful toadstool, the Fly Amanita *(Amanita muscuria),* with its huge red cap and white dots on the top. We all know, of course, that the Fly Amanita is poisonous. Strangely enough, I was told that during World War II when food was scarce in Europe, quite a few people picked Fly Amanitas, peeled and boiled them, poured all cooking juices off and ate them without any ill after effects. Although the poison in Fly Amanitas might not be as potent as that of others, I would strongly recommend leaving Fly Amanitas in the woods to let others enjoy their beauty.



Death Angel (does not come with skull and bones!)

Under aspens, spruce, or pine trees, we often find patches of very conspicuous red, yellow, pink, purple, and green *Russulas,* the caps of which are 2 to 4 inches broad, the gills white or yellow and of very brittle character. Among the *Russulas* are some edible species, others are unpalatable and older mushroom books considered the bright red *Russula emetica* very poisonous. Although present day scientists say that there is no immediate danger of being poisoned, I would advise not taking any *Russulas* unless you have learned to identify them.

The best eating mushrooms, which under favorable conditions can be found in abundance between 7,000 and 11,000 ft. of altitude, are those belonging to the *Boletus* family. Instead of gills their under surface is covered with small pores or tubes which seem to be glued together. There are actually only two poisonous species of *Boletus* I know of—the *Boletus satanus* and *luridus*—both of which resemble each other, have orange or red tubes, a club shaped red stem and turn blue when bruised or cut. I have not found any of them in this region up to the present time, but shall watch for them this year again. The Bitter Boletus, which is not poisonous but unpalatable, can be found here, although it is not frequent. A little piece of it has such a penetrating bitter taste it will spoil a whole meal.

In Europe the *Boletus edulis* is considered the king of the mush-



Boletus edulis

rooms and highly valued because of its delicious flavor and suitability for all kinds of preparations (frying, boiling, pickling, preserving and drying). Under favorable conditions it can grow to tremendous size (cap to 12 inches broad, stem to 10 inches long, weight up to 2 lbs.). Unfortunately, little worms usually find those magnificent specimens faster than we do and spoil our fun —we are not the only connoisseurs! The cap of the *Boletus edulis* is almost white when it appears on the surface, but will soon turn into a light and later dark brown. Underneath the cap is a thick layer of fine tubes which first are white, but very soon will turn greenish yellow and finally olive green. The stem is of white to light brown color and its upper part has a fine white network pattern. It has been found that the mycelium of the *Boletus edulis* lives in close partnership with the sucker roots of living trees, such as spruce, pines, and aspens.

The *Boletus versipellis* or Red Cap, one of the closest relatives of the *Boletus edulis* is similar in size and taste and can be found in abundance in the higher Rocky Mountains at times. Its cap is of brick-red color and its long, slender, white stem is roughened with fine blackish scales and dots. The Red Cap is undoubtedly one of the most beautiful mushrooms and many people who do not know anything about mushrooms are sure it is a toadstool or even put it into the same category with the Fly Amanita. When bruised or cut, the white flesh of the Red Cap will turn greyish blue or greyish purple. Very similar in appearance and also good tasting is the *Boletus scaber*. The only difference is that the color of the cap ranges from nearly white to dark brown and that the flesh stays white when bruised or cut.

There are quite a few more edible species of the Boletus family that can be found in this area, e.g. the *Boletus luteus, bovinus, variegatus,* and *chrysenteron,* all of which resemble each other to a certain degree and are a delight for the eyes and stomach of a mushroom hunter.

It has happened to all of us, I am sure, that while walking through woods or meadows, all of a sudden a small cloud of greyish brown powder puffed up consisting of the spores of a mature, dry puffball *(Lycoperdon* or *Bovista).* Although puffballs are not as tasty as many other mushrooms, they can be eaten when young. It is not advisable to eat a puffball with hard blackish blue or blackish grey flesh as it might be one of the poisonous or unpalatable *Sceroderma* species.

One of the spiciest and most favorite mushroom of many Europeans is the dainty yellow *Cantharellus cibarius.* Usually, many can be found in one patch. The



Cantharellus cibarius



Hydnum imbricatum

whole mushroom, ¼ to 2 inches in size, as well as the gills, is of a bright yellow color; the flesh is white. People in Europe value it because of its strong, spicy flavor and its firmness and durability when shipped to distant markets. Unfortunately, I have not been able to find many in this region.

Two very interesting edible mushrooms belonging to the *Hydnum* family are quite common in this area. Instead of gills or tubes, they have small awl-shaped teeth on the under surface. The bright yellow *Hydnum repandum* on first sight resembles the aforementioned *Cantharellus cibarius,* although it is not as superior in taste. The brown *Hydnum imbricatum* is extremely interesting in appearance and reaches tremendous size. Its cap is brownish and cracked in irregular big scales and gives the impression of being scorched. The teeth underneath are of greyish brown color; the flesh is white; it often grows in clusters. The big mature species are too hard to digest and develop a slightly bitter taste. Only young species are good for eating.

There are, of course, quite a few more edible species, e.g. the *Lactarius deliciosus,* the *Lepotio procera,* the *Amanita rubescens,* which I have had the pleasure of finding during the last three summers. The aforementioned and described, however, are the most common and interesting ones.

Mushroom hunting is a very healthy and enjoyable hobby for nature lovers and can get quite exciting at times, especially when you find some rare species which are delicacies.

But please take this advice to heart:—*Never pull* any mushrooms —*always cut* them. By pulling (and unfortunately most people do that) you destroy the actual plant, the mycelium, and there might not grow another mushroom. But if you take your knife and cut the mushroom carefully, you only cut the fruit and leave the mycelium intact.

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A REPORT ON PROGRESS

By ROBERT L. WOERNER, *Director*

Spring is a busy season at the Botanic Gardens. With the reductions in staff brought about by budget cut backs, there was an overabundance of work for our gardeners. Thanks to their industry and interest we have been able to take care of our critical needs in the way of maintenance. We have even managed to do a limited amount of new planting.

Accessions. Plant accessions for 1958 have exceeded the 100 mark. Most of these were additions to the rose garden and the Glenmore Pinetum. Since the accession number represents only one specie or variety the number of plants received totals about five hundred. Accessions also include a number of packets of seed received as gifts or through seed exchange with other botanic gardens.

ROSE GARDEN. Our principal planting was carried out in the rose garden. Several varieties and a number of duplicate beds were removed to make room for new test roses and some additional high-rated roses. Included in the planting were 13 hybrid teas, 6 floribundas and 1 new grandiflora.

We were able to replace the soil where necessary in all of the beds receiving new roses. Many yards of good top soil and leaf mold were used to insure good growing conditions for these plants.

We were able to plant our roses early this spring before the rush of other work was upon us. It was also possible to fill a number of the vacancies in the beds this year. We appreciate the generosity of the commercial rose growers and the Denver Rose Society in helping us add to the rose garden. An excellent display of our 175 varieties of roses can be expected this month.

GLENMORE PINETUM. Two spruces and five junipers were added to the pinetum this spring. Much of the relocation of plants scheduled for this year had to be delayed because of our reduced staff. Fortunately most of our large duplicate trees were moved from the mound to other park areas last fall, so there is ample room for the development of this fine collection.

Many new coniferous plants have been added to our plot at the city nursery where they will be grown until they are large enough to be planted out. Some of the experimental evergreens are being grown in the lath house this year to help acclimate them to Denver conditions.

PRUNUS COLLECTION. One plum and three cherries were added to the *Prunus* collection this spring to bring the total species and varieties to 32. Due to a mild winter with no late frosts the garden unit was quite colorful for its young age. The small Japanese flowering cherries planted just last year bloomed very

well. Two varieties, the Siebold cherry and the Higan cherry bloomed for a period of two weeks. Other plums, peaches, and cherries added to the color in this relatively new collection.

BIRCH-ALDER COLLECTION. Four new species of birch were added to this collection. Despite the difficulties of transplanting this group of trees, the planting was successful, thanks to the wet spring. Of the collection planted during the past two years, only one alder has failed to survive. This group should be of great interest in the future since few of the birch and alder species have been tried in our climate.

SPRING BLOOM. Our iris garden has been very colorful this year. A fine display of pumila iris led off the show. These tiny plants are increasing well and their massed blooms provided early color despite the frosts toward the end of April.

Following the pumilas, the dwarf iris bed provided two weeks and more of color. Before the dwarfs were through flowering, the intermediate iris added their bit to bridge the period to the time when the thousands of tall bearded iris took over. Although winter rot destroyed some of our late transplants in the tall bearded group, there was another fine display in the garden this year.

Due to the fine, well spaced showers at tulip time we had a good tulip show on the mound south of the museum during the second and third weeks of May. Hundreds of people visited the botanic gardens to see this collection of 40 varieties.

The crabapples and lilacs also contributed their bit to our spring show along with the hawthorns, shrub borders and an exceptionally heavy bloom on the horsechestnut trees to the west of the museum.

THE HERBACEOUS UNIT. We are sorry to report that a building for a botanic garden headquarters has not yet been acquired. Negotiations have been in progress to purchase a home adjacent to the York Street site, but they have not been completed as yet. This is particularly disappointing since the building in question is ideally suited for offices for the Denver Botanic Gardens and the Colorado Forestry and Horticulture Association. Adequate library space and several meeting rooms would be immediately available. Because of the unique adaptability of this residence, the Foundation has continued to seek its acquisition. Action will be required soon since the building now occupied by Horticulture House will have to be vacated by the end of this year. It would be most impractical to relocate the Colorado Forestry and Horticulture Association temporarily and delay the development of a center for all gardening interests.

The Colorado Federation of Garden Clubs has also been patiently waiting for the completion of the arrangements for the botanic gardens headquarters. This organization was forced out of their adequate quarters when the park in which they were located was taken over for Valley Highway construction.

We regret the delay these two fine horticultural organizations have had to endure. We hope they will bear with us a short time longer in order that our dreams can be realized, and the three organizations can be located in one building adjacent to the proposed gardens for the mutual benefit of their membership of four thousand gardeners and the public at large. With the cen-

tennial year fast approaching, we hope that we can participate in the celebrations by opening the finest horticultural center in the country.

In the meantime, we are going ahead with plans for the development of the garden areas at the York Street site. Our first development will probably be some annual plantings late this month. We have been promised sufficient iris for a new iris planting in the area. With protection and fencing we will be able to set out more valuable rhizomes than we have dared to do in City Park. The complexity of the plantings on the new area will require months of planning. There will be thousands of bulbs, perennials, shrubs, hedges, rock plants, herbs, and many other plants to consider in the development. We cannot hope to accomplish our goal in a short time, but we feel we can make a good start this year.

We hope that every group and garden club will lend their support to this endeavor of the botanic gardens. The benefits of the gardens, and particularly the new area will be many fold. We will have an opportunity to show by demonstration, many of the gardening principles which have been discussed in talks and newspaper articles. We will be able to provide much needed space for club meetings and small shows. And for those whose interest in gardening and horticulture is limited or non-existent, we will have gardens of such beauty, that they can be admired for their beauty alone.

A PARK MAN'S CREDO

By RUDOLPH KRESTAN, *Union County Park Commission of New Jersey*

"I shall strive:

To preserve Nature's beauty for those who seek it:

To aid living plants in their battle against the onslaughts of insects, the ravages of disease, the blows struck by the elements, and the heedless acts of those who see not or care not;

To help develop vistas that will lead all eyes to the joys to be found outdoors;

To provide places for healthful play amidst surroundings that will bring out the best in people;

To make possible a community of action that will transcend all religions, all questions of race or color of skin, and will result in pleasure for all with sorrow to none;

To lead all visitors to exclaim: "This is a part of me, this is life as it should be lived; this is the spirit of America."

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GARDEN CLUB NEWS

By MRS. H. D. DUSTON

Mrs. John Nickels, president of the Colorado Federation of Garden Clubs, and eight other garden club members of the state attended the 29th annual meeting of the National Council of Garden Clubs held in Seattle, Washington. Mrs. F. S. Mattocks of Boulder, national parliamentarian, also attended. More than three hundred delegates represented the state federations. "Natural Beauty, Our Most Precious Resource," the theme of the convention, was exemplified by indoor and outdoor flower shows, bus tours of gardens, and emphasis on horticulture stewardship.

The National Council became the Founder at Cornell University for the Liberty Hyde Bailey Hortorium for plant research, and encourages clubs to donate to the fund.

Two Colorado Clubs received the National Purple Ribbon Award for Flower Show Achievement. One was awarded to the Grand Junction Garden Club for the show staged May 18, 19, 1957, whose theme was "Diamond Jubilee of Grand Junction, Past, Present, Future." The other went to the Green Thumb Garden Club of Denver for the show staged August 21, 1957 with the theme "Hark, Listen to the Flowers."

To Miss Susan Scott, daughter of Mr. and Mrs. John Scott of Englewood, Colorado, went first place award in the Junior Division of the national poster contest. Another Colorado youngster, Joseph De Bano of Jansen, Colorado, won fourth place in the same contest.

Flower Show School, Course I, will be held in Denver, October 1, 2, 3, 1958. The instructors cover basic horticulture, flower arranging, and flower show practice. This is open to the public. Local chairman is Mrs. L. J. Woodman, 3985 South Pennsylvania, Englewood.

Mrs. Edith H. Shakespeare sent in the following news: The Sunshine Seeders became an organized club a year ago this March at the home of Mrs. Irwin Elliott. Club president is Mrs. John Sobiella. Club activities include sponsoring nine Junior gardeners, doing garden therapy work with patients at Pleasant Rest Home in Englewood, participating in anti-litter-bug campaigns, giving bird reports, and having do-it-yourself programs. Our spring flower show "The Magic of Springtime" had 113 Junior entrants.

(Editor: Mrs. John Sobiella won the blue spruce donated by Swingle Tree Surgery Company as a door prize for the Garden Show and Fair held in the Field House at Denver University May 16, 17, 18.)

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Quercus (Queer Cuss) Returns

Editor:

More than a decade ago *The Green Thumb* carried my column "Quercus (Queer Cuss) Quips." Frequently, I jousted with that Master botanist—and worm, compost and manure authority—John Stockbridge who was an itinerant contributor to *The Green Thumb*. I retired, following my personal appearance at the annual banquet then. A querulous lament by a nurseryman who neither knew nor stocked ought but Ponderosa Pine, Blue Spruce, and Silver Cedar drew comment from me a couple of years ago. And now, a privately printed and circulated transliteration, made for the Master Semanticist John Barrows, of two "Botanical Allusions of Master William Shakespeare, privated printed at the sign of Ye Weeping Crocus," prompts me again to address you.

This semantic botanical* must be made available to all Green Thumb readers, if for no other reason than to send a curious few to Bailey and Rehder in order to ascertain for themselves that all transliterations, whether or not dubbed "useless" by Stockbridge, are, in fact, botanically, semantically, and transliteratorially sound.

I quote Ye Masterpiece:

When daisies pied, and violets blue,
And lady-smocks all silver white,
And cuckoo-buds of yellow hue,
Do paint the meadows with delight.

Love's Labour's Lost, Act V, Scene 2

When *Bellis perennis* pied, and *Viola sylvestris*
And *Oxalis Acetosella* all silver white,
And *Lychnis Flos-cuculi* of yellow hue,
Do paint the meadows with delight.



I know a bank where the wild thyme blows
Where ox-lips and the nodding violet grows;
Quite over-canopied with luscious woodbine,
With sweet musk-roses, and with eglantine.

A Midsummer Night's Dream, Act II, Scene 1

I know a bank where the *Thymus serpyllum* blows,
Where *Primula elatior* and the *Viola elatior* grows;
Quite over-canopied with *Lonicera Periclymenum*,
With sweet *Rosa moschata* and *Rosa Eglanteria.*

OTHER USELESS INFORMATION

Oxalis Acetosella may be *Cardamine pratensis*
Lychnis Flos-cuculi is red or pink
Lonicera Periclymenum is actually *Parthenocissus quinquefolia*

Transliteration

Sincerely,

QUERCUS

**or is it botanic semanticism?*



THE CHAMBER OF COMMERCE OFFICE IS BEHIND THIS JUNIPER

By S. R. DEBOER

You would not look for the Chamber of Commerce office behind this bushy juniper on the Main Street of Las Cruces, New Mexico, but that is where it is actually. You enter the office through a planting of evergreen trees and flowers for summer display. The building is on the corner of the public library, which is on the side street and is shown in the picture below. It is the Brannigan Library and was named after a prominent citizen of the city. The beautiful Pueblo architecture with considerable Spanish influence is



very attractive in the bright sunlight of the lower Rio Grande Valley. The evergreen planting and the wall separating the garden of the library from the sidewalk has a typical Spanish touch.

These two buildings in one design, located on the busy shopping street of this city and along a narrow sidewalk at that, show that it is possible to introduce some little bit of horticulture in the drab picture of our downtown districts.

DO YOU DESERVE A BOUQUET IN HORTICULTURE, OR A WHIP?

An English editor was writing about garden shows and about recent interest in horticulture. (Gardeners' Chronicle, Aug. 24). He said:

> "Years ago, the local squire used to lend a wagon and two or three men to set up the tents and all the other paraphernalia for the show on the village green. Nowadays, the squire has no wagon and no men to lend. The hard-pressed show committee has to do the work—or, more often, one or two zealous members do it all. Too often, if they ask for help from the village, they have to pay for it. Maybe, in years to come, those who now rejoice that they no longer owe any allegiance to the squirearchy may accept some of the responsibilities that the squire discharged without giving them a thought. But in these days of canned entertainment many of the simpler pleasures are ignored or scorned. There will be a revulsion of feeling towards the mass entertainments; do not be depressed; keep on with the good work; it will bring its rewards, perhaps sooner than we think."

So much for England. How are things with us?

Immediately our thoughts turn to the devoted work done by such members as Mrs. McLister, Mrs. Honnen, Mrs. Enos, Mrs. Barbour, Mrs. Garrey, and dozens more. Among the men there are Fred Johnson and Clyde Learned, not to mention all the people whose profession draws them directly.

Evidently, we need not worry too much about the squire's demise. To all of us, our horticultural accomplishments during the last ten years are a pleasant thing to look back to. To all of us, they should be a spur toward even better achievement.

In horticulture we owe much to the past, and we owe still more to the future.

—M. WALTER PESMAN

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SEASONAL SUGGESTIONS

A REPORT ON LAWN TROUBLES

On June 16 a meeting of a number of turf experts and other interested persons was held at Horticulture House to consider the severe turf problems that have appeared this spring and to offer recommendations. The following is a summary of that meeting:

It was brought out that there could be a number of factors involved in lawn failures this year; namely, soil insects such as the sod webworm, improper use of fertilizers, disease, pets, drought, and over-watering. Considering all these things, it was felt that disease has been the primary culprit. In drought years, disease is usually of minor importance because there must be the right temperature and sufficient moisture for it to flourish. This spring conditions were just right and diseases, dormant in soils for years, have infested lawns. Two diseases, melting-out and foot rot, have been isolated from turf samples. Both are of the same family—*Helminthosporium*. Because considerable damage has been done to the lawns, recovery will be slow and will require the following good cultural practices:

Rake out dead matted areas and apply one of the following chemicals at the rate given. Each amount is for 1000 square feet:

Panogen 15—3 oz. in 3-10 gallons of water
Captan—4-6 oz. in 10 gallons of water
Ceresan 75—2½ oz. in 3-10 gallons of water
Zineb—6 oz. in 3-10 gallons of water

For better coverage and control, a wetting agent such as Triton B-1956, or Glomore, should be added. This treatment should be re-applied in 15-21 days. If similar weather conditions exist next spring, a preventative application of these materials is advisable.

Any of these ingredients can be applied with a sprinkler can or a regular garden sprayer. *Use all the precautionary measures recommended* on the label because some of them, particularly the organic mercury compounds, are deadly poison in concentrated form.

Over-watering invites disease and develops shallow-rooted grass. Lawns should be watered thoroughly but *infrequently*. Depending on the type of soil, four to seven day intervals are recommended when there has been no natural moisture.

Lawns should be mowed frequently and at a height of 1½ to 2½ inches. Use a sharp mower and catch the clippings every other time. Aeration, particularly in heavy compact soils, may be beneficial.

If the lawn hasn't been fertilized in the past six weeks, an application of a complete fertilizer can be applied. Results indicate that the addition of iron sulphate, ½ pound per 1000 square feet, or one of the iron

chelates at recommended rates, will aid lawn recovery.

Re-seeding will be necessary in extreme cases. This can best be done in the latter part of August. Rake the spotted areas, apply good seed, and mulch with peat moss for best results.

While the group agreed on these recommendations from past experience, they expressed a need for more research on turf problems. Ted Rupple, a spokesman for the Rocky Mountain Turf Grass Association, said this group would seek an appropriation at the next session of the state legislature for the initiation of such a research program at Colorado State University. We hope our membership will support this action.

P. S.—Don't forget the Garden Tours July 9 and July 30.

—PAT.

COME HOME, ALL IS FORGIVEN

Not many years ago the mere mention of coyote to a Colorado rancher would have brought oaths that could have been heard for miles.

Back then the coyote was a depised creature, known as a destructive predator that would stalk and devour anything up to a small calf. Attractive bounties were offered for all coyotes destroyed and a program was instituted to rid the ranges of them at all costs. Coyote-hunting, shooting, trapping and poisoning programs were encouraged by the ranchers and welcome signs were hung out for hunters to assemble and lend a helping hand.

Verily, the poisoning program in itself exceeded even the fondest expectations. Along with the departure of the coyotes went the hawks, owls, eagles, and weasels, other predators. Hand in hand with this came an almost fantastic gain in the rodent population, particularly the pocket gophers, for their natural enemies had been eliminated.

Cattlemen who control more than 200,000 acres of land estimate that the rodents now have eaten more than 30% of the range grass, with forage losses totaling more than $3 million. Those old welcoming signs have come down and new ones read: "Coyotes Protected—No Hunting, Shooting, Trapping or Poisoning of Coyotes on This Land." For today the once scurvy coyote is no longer a sinner, he's a saint!

—TUBBY TOMS, *Indianapolis News,* Friday, Jan. 10, 1958



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The Green Thumb

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The Green Thumb

Vol. 15 AUGUST, 1958 No. 7

Colorado Forestry and Horticulture Association

Organized in 1884

"To preserve the natural beauty of Colorado; to protect the forests; to encourage proper maintenance and additional planting of trees, shrubs and gardens; to make available correct information regarding forestry, horticultural practices and plants best suited to the climate; and to coordinate the knowledge and experience of foresters, horticulturists and gardeners for their mutual benefit."

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THE COLORADO FORESTRY AND HORTICULTURE ASSOCIATION

A nan-profit, privately financed Association

1355 Bannock Street • Denver 4, Colorado • TAbor 5-3410

LOOK AND LEARN GARDEN TOUR IV
August 13—10 A.M. to 5 P.M.

APPLEWOOD MESA

Mr. and Mrs. William McFerren, 14600 Crabapple Road
Mr. and Mrs. W. Wayne Tyler, 14405 Crabapple Road
Mr. and Mrs. P. E. Riddell, 13465 Braun Road Glen
Mr. and Mrs. Kenneth R. Fenwick, 13470 Braun Road Glen

APPLEWOOD HILLS

Mr. and Mrs. Robert R. Ruland, 1800 Willow Lane
Mr. and Mrs. Myron T. Bunger, 1800 Youngfield Road

APPLEWOOD MANOR

Mr. and Mrs. William Peery, 1980 Union Avenue

MEMO

Calendar of Events

"Fun with Flowers" — A lecture and demonstration is followed by the making of arrangements. Each person brings containers, mechanics, and material. The workshops are open to everyone. Due to popular demand the workshops will be held each month at the following times and places:

Workshop No. 2 — Lakeside Denver Dry Goods, 44th & Harlan, Denver, First Tuesday, 10:00 a.m. Chairman: Mrs. C. C. Buckbee, 4190 Depew, Denver.

Workshop No. 3 — Englewood State Bank, 180 East Hampden, Englewood, Second Wednesday, 10:00 a.m. Chairman: Mrs. H. E. Cluphf, 3888 South Grant, Englewood.

Workshop No. 4 — Arapahoe County Fair Grounds, W. Belleview and Windemere, Littleton. Third Tuesday, 10:00 a.m. Chairman: Mrs. John Sobiella, 386 North Windemere.

August 6—Botany Club meets first Wednesday of each month, 7:30 p.m. at Horticulture House.

Aug. 13—Look and Learn Garden Tour, Applewood Mesa, 10 a.m. to 5 p.m. Tickets $1.00.

Floral Art Course: Opportunity School. One year course starting in September. Every Thursday: 9 a.m.-11:30 a.m., 1 p.m.-3:30 p.m., 6:30 p.m.-9:15 p.m. There is no charge except for materials.

Garden Guide—Every Wednesday, 7:30 p.m., KRMA-TV Channel 6, Pat Gallavan, horticulturist.

The Green Thumb Program—Every Saturday morning on KLZ at 8:45 a.m.

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AUGUST FLOWER SHOWS

Aug. 6—Broadmoor Garden Club—Fine Arts Center, Colorado Springs.

Aug. 7—Broomfield Garden Club—Broomfield Methodist Church, 2 to 8 P.M. "Beyond The Garden Wall."

Aug. 7 — Morning Belles Garden Club — Reorganized Church of Jesus Christ, 2506 So. University Blvd., Denver, 2 to 8 P.M. "Potpourri."

Aug. 8 — Hampden Hills Hoe and Grow Garden Club — Hampden Hills Church, 3000 So. Race St., Denver.

Aug. 10—Annual Gladiolus Show, U. S. National Bank 2 p.m. to 6 p.m.

Aug. 12—Martindale Garden Club Show.

Aug. 13 — Green Thumb Garden Club — Washington Park Community Church. "Floral Musicale."

Aug. 13—Gilcrest Top O' The Mornin' Garden Club—Gilcrest School House, 2 to 5 P.M. "Garden Hit Parade."

Aug. 13 and 14—Arapahoe County Fair—W. Belleview and N. Windemere, Littleton. Junior Show, "Hi Lo Come To The Fair," 3 to 10 P.M. and Noon to 8 P.M.

Aug. 14 and 15—Arapahoe County Fair—W. Belleview and N. Windemere, Littleton. Adult Show, "Hi Ho Come To The Fair," 3 to 10 P.M. and Noon to 8 P.M.

Aug. 16—Top Of The World Garden Club, Gunnison, 1 to 8 P.M. "Gateway To Beauty."

Aug. 19—Garden Club of Durango—"Colorado Vacation Land."

Aug. 19—Country Garden Club, Boulder—2 to 5 P.M. "Autumn Dividends."

Aug. 20 — The Morning Glories Garden Club — Jefferson County Fair Grounds, 15590 W. 6th Ave., 2 to 5 P.M. "The Flower Fair."

Aug. 23—Westminster Garden Club—Westminster Elementary School, W. 72nd and Lowell, 2 to 8 P.M.

Aug. 23 and 24—Golden Gardeners—Masonic Temple, 400 10th St., Golden. Aug. 23—2 to 8 P.M. Aug. 24—10 A.M. to 4 P.M. "TV Guide to Floral Stars."

Aug. 27—Suburban Garden Club—Masonic Temple, 14th and Independence, Lakewood. "Beauties Of The Earth."

Aug. 28—Columbine Garden Club—Idaho Springs, 2:30 to 8:30 P.M. "Mountain Treasures."

Aug. 28—Laura Stewart Garden Club—Community Building, Loveland. "Beauty Out of The World."

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ROBERT E. MORE - AN APPRECIATION

By FRED R. JOHNSON



Robert E. More, distinguished attorney, civic-minded citizen, horticulturist, botanist, arborist, forester, and jolly good fellow, retired on June 1. Mr. and Mrs. More will shortly move to California so this is an appropriate time to record an appreciation of his services to his native state.

Born March 11, 1892, in Denver, he attended Denver public schools, received his A.B. degree at Dartmouth College, and his LL.B. from Harvard University. In 1916 he became associated with the law firm of Dines, Dines & Holmes and, at the time of his retirement, was senior member of this firm.

He is a past president of the Denver Bar Association and was a professor of law (part time) at the University of Denver Law School from 1921 to 1933. He was for a time Denver Counsel for the Alien Property Custodian, and several years ago was appointed by the Federal Court as one of the lawyers to defend a group of communists.

He married Miss Alice Bancroft in 1915. A son Jerry, also a graduate of Dartmouth, is in motion picture and industrial management activities in California.

Bob's interest in horticulture and trees dates back to his childhood days when his summers, also Mrs. More's, were spent at Buffalo Creek, close to the North Fork of the South Platte river. The Bancroft summer home nearby dates back to 1895. In fact the one-acre enclosure around the cabin has been protected from grazing and fires since 1887 and is one of the finest examples of virgin native vegetation in the state.

After Mr. and Mrs. More took over this property, they started adding to and developing the area. The pretty glen, with its natural flow of water from which the name Glenmore is derived, readily lent itself to landscaping. Small wonder, then, that this energetic young lawyer found an outlet for his interest and enthusiasm in nature.

About 1932 he started to landscape his mountain home, using native plants. The latest inventory showed about 200 flowering plants, 25 species of native grasses, 100 deciduous woody plants, and about 200 varieties of evergreens.

Over the years, additions to the original one-acre plot have swelled Glenmore to 110 acres. A nursery, to hold exotic plants until they are ready for planting in forest habitats,

was found necessary. Protection against the browsing of deer, which could not be kept out by cattle proof fences, was also found necessary. So spraying the small evergreens with chemicals obnoxious to these animals has been an essential part of the maintenance each winter.

Bob says that the extension courses he took under Walter Pesman in landscape gardening and under Prof. Joseph Ewan of the University of Colorado and at the University of Denver in botany stimulated his interest along these lines. As the planting program developed at his mountain home, his inquiring mind led him to dig into the habits, characteristics, and horticultural uses of our native evergreens and later of many exotics. As a result, he wrote a booklet on "Colorado Evergreens" in 1943 mostly devoted to the identification of the various species. In 1949 a revised edition was issued by the Denver Museum of Natural History of which Bob was a trustee for many years. Beautifully illustrated and enlarged with chapters on horticultural uses of our native evergreens, and on timberline trees, this book is really a must for amateurs and professionals. Numerous articles on evergreens and related subjects from his prolific pen have appeared in The Green Thumb. The latest was "Evergreen Rembrandts for the Rocky Mountains."

He was active in the consolidation of the Colorado State Forestry Association and the Denver Society of Ornamental Horticulture in 1944, in the preparation of a constitution and bylaws, and later, of articles of incorporation for the new Association. A member of the board of trustees for many years, vice president for a period, and on the publications committee of The Green Thumb during its infancy, his thoughts and ideas have been felt in practically every phase of our Association's growth.

For example, he was general chairman of the membership and solicitation campaign in 1947 that enabled the Association to engage in a constructive program. He was the spark plug of the committee that made a study and report on the condition of elm trees in Denver that had been brought about by attacks of elm scale. It was this committee which urged the city and citizens to protect their trees.

In 1948 he made arrangements with Governor W. Lee Knous for the printing and distribution of 2000 copies of the report on "Survey of State Forestry Administration in Colorado" by Alfred B. Hastings.



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The report called to public attention the condition of state and privately owned forest lands in Colorado.

Bob was one of the boosters for the Denver Botanical Garden and a trustee from the date of its organization February 27, 1951, until recently when he resigned because of his departure from the state. His gift of 200 varieties of conifers, known as the Glenmore Pinetum, will be a distinctive feature of the Denver Botanical Garden for many years.

Thank you, Mr. Horticulture, for the inspiration you have given us in your efforts to make Colorado a more beautiful state. We are sorry to lose you to California, but best wishes to you and Mrs. More for many years of happiness in your retirement which we know will be devoted to your hobby.

As a closing thought, wouldn't it be fine if some public spirited citizen would purchase Glenmore and present it to the state or the Denver Botanical Garden as an Arboretum?

The first botanist explorer to send plant specimens of Colorado to Europe was Charles Christopher Parry.

Alice Eastwood, a teacher in the East Denver High School in the early 1880's wrote the first book on the local flora of Colorado, *Popular Flora of Denver, Colorado.*



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Arrangement Of The Month

The above arrangement by Mrs. Guilford Jones features bells of Ireland, shasta daisies, and yellow chrysanthemums in a milk glass container of classical design. The form of the display is a mass equilateral triangle and would be considered "modern" as opposed to the stylized schools of the Far East where the art of flower arranging was born.

Specifically, it all began in ancient India and China where the Buddhist monks went out after the storms to gather the broken flowers. They tried to prolong their lives by placing them in jars of water which were then placed on the temple altars. In 553 A.D., Buddhism was introduced into Japan and with it this custom of decorating altars with flowers. Over hundreds of years it developed into an art and finally spread (only relatively recently) to the western hemisphere. Here it hybridized to become what is called today "modern" flower arrangement. Simply, this is the result of the crossing of the severely stylized line arrangements of the East with the unfettered, robust, colorful arrangements of the West. And as hybrids often do, it tends to possess more vigor than either parent. Today, American flower arrangement stands on its own feet, acknowledging what it owes to the past, but still establishing its own standards and encouraging originality in design and technique.

—Arrangement by MRS. GUILFORD JONES
—Photo by JACK FASON

NATURAL VEGETATION ZONES IN COLORADO

(A Bit of Elementary Ecology)

By MORAS L. SHUBERT, University of Denver

There are many reasons why we like to live in Colorado and other mountainous areas similar to it, but one important reason is that we can enjoy the thrill and excitement of selecting any sort of climate we choose on any day of the year without traveling far. We maintain a tropical climate inside our homes the year around, of course, but we also enjoy a tropical climate outside at altitudes below 6500 feet in the growing season between frosts. If we prefer a climate similar to that found at lower altitudes in the northern states, we can find it in our foothills. Suppose that we want to enjoy the pine smells and cool, invigorating air of the Canadian forests. We can find the same type of habitat by going up to a subalpine forest at around 9500 feet. In our alpine regions we find a situation similar to the arctic tundra, and all who visit the alpine areas above the trees are familiar with the intoxicating exhilaration experienced there.

Even greater enjoyment can come from visits to each climatic zone when we increase our understanding of what we see, and it is possible to see more when we know something about what we are looking at. Each of the zones mentioned, and others, too, can be recognized by finding the dominant species of plants that characterize them. The major zones or regions which form distinct units of vegetation in the central Rocky Mountains and adjacent plains are: the grasslands, the transition zone, the montane forest, the subalpine forest, the alpine zone, the piñon-juniper woodland, and the open parks of the mountains. Let's now consider the main identifying features of these in the order listed.

The grasslands:

Our grassland areas, mostly at elevations (in Colorado) between 3400 and 6500 feet above sea level, are so easily distinguishable that little needs to be said to identify these areas where trees cannot grow without special care, except for a few along stream banks. In the grassland areas, it is arid enough so that the annual precipitation is normally less than the evaporative potential. Or in other words, if we measure evaporation out on the plains by continually adding water to an open pan and computing the loss, we will find that in a year's time over 60 inches of water will evaporate in a locality where the total precipitation is less than 20 inches.

Since there is only enough water to support plants with a short growing season, we find only grasses and other herbaceous plants on these semi-arid plains. The annual species are able to survive the dry period in their seeds, and the perennials remain more or less dormant between periods of spring moisture.

For a more detailed description of the beautiful grasslands which many of us are prone to overlook without appreciating their interest and beauty, read Dr. Helen M. Zeiner's article in this issue of The Green Thumb. Then make excursions *on foot* on the prairie either early in the morning or just before sundown in order to see, smell, feel, and even hear (the comforting quietness sprinkled with bird songs) this too-little appreciated zone.

We are so accustomed to thinking of the very dramatic growth forms of the trees at our high-altitude timberline that we may forget that there is also a lower "timberline." But if we stand on any high point on the plains about ten to fifteen miles from the foothills and look towards the mountains, we can discern a very irregular lower timberline. Of course there is a wide variation both in vertical distance and on the land's surface, because the effects of streams and differences in slopes greatly influence tree survival.

The first indicators of the transition zone between the grasslands and true forests above are low growing woody shrubs, mountain mahogany being the most common. The first trees encountered will be scrub oak and some scattered juniper. From about the center of Colorado and northward, scrub oak loses out, so the transition zone may be almost entirely a community of shrubs, dominated by mountain mahogany.

Montane zone:

Between the altitudes of about 6700 feet and 8500 feet in the Central Rockies, we find the ponderosa pine-Douglasfir forest which dominates the montane zone. This is a much-favored region for mountain homes, and most of our mountain villages are within this zone. In addition to the dominant trees mentioned, our beautiful state tree, the Colorado blue spruce, grows along canyon bottoms, and in the southern half of the state along streams, stately white firs.

Spring flowers in both this zone and in the transition zone start blooming very early in sheltered places. It is not uncommon to find spring beauty and several other species blooming as early as February. But the really spectacular show of color comes when larger, showier species such as numerous legumes (locos, etc.), larkspurs, paintbrushes, and penstemons bloom. Their best season is midspring and early summer. If you are especially fortunate, as we were on July 5 of this year, you will find the rare mountain wood lilies with their brilliant orange flowers. And may I interject a conservation note here? If you know a plant is rare, leave it alone, but if you do not know whether it is rare or not and feel that you really need a sample for identification, take only one specimen from a place where there are at least five separate plants of the same kind growing close by. This is a good rule to remember in any zone!

Subalpine zone:

Above an altitude of about 8500 feet in Colorado and, of course, below the alpine timberline, you are in a forest dominated by Engelmann spruce and alpine fir. In areas where there has been a disturbance like a fire or clear cutting, stands of lodgepole and aspen act as dominant trees before the return of the spruce-fir forest. In this zone the growing season is shorter but generally wetter than the zones lower down the mountain. Because of heavier snows of longer duration, this is where most of the best skiing is found. Many of the same species of flowers found at lower altitudes also bloom here, but their blooming period is several weeks later. It is in this zone, especially along the continental divide, that you find the best Colorado columbines often growing in the light shade of aspen trees.

Alpine zone:

There are really two zones in the alpine vegetation that covers the tops of the mountains above the trees. One is the alpine meadow which is ordinarily found either just above timberline or else in pockets sheltered from the winds higher up.

The other alpine vegetation is the tundra which covers the windswept areas where only the mat plants or low-growing sedges survive. The meadow plants are mostly species that grow up to around twelve inches in height. Many of these are grasses and sedges, but those more familiar to the flower-lovers include the golden avens, the sky pilots and near water courses, Parry's primrose and both garnet crown and rose crown. There are, of course, many other species which we will not take space to list here.

The true tundra, made up of pulvinate forms that hug the surface of the ground, includes many colorful and fragrant species. A few of these are alpine forget-me-not, phlox, moss campion, and alpine clover. The whole aspect of the alpine zone is a response to the very short growing season, often only about eight to ten weeks, and the effects of the desiccating winds blowing over the cold soils. Much of the precipitation comes in solid form as snow, hail, or graupel, and it is with amazement that we realize how little damage occurs to these plants that are adapted to such a rigorous habitat.

Piñon-juniper zone:

It would be a serious oversight if we omitted mention of this zone which occupies extensive areas, especially in the southwestern part of the state. As the name indicates, the dominant trees of this open woodland are the piñon pine and Utah juniper. It occupies a position between sagebrush-dominated open areas and the mountain forests higher up. Much of the area is so arid that it is difficult to understand how trees can survive at all. The rather wide spacing and the low stature of these trees seem to be the compensating factors, plus a highly permeable substratum on which they grow making it possible for this type of vegetation to exist. This is the characteristic vegetation of Mesa Verde, but it is also seen throughout much of southwestern Colorado.

Mountain parks area:

In classifying the ecological zones of the state of Colorado, we must give some thought to these open grassland or sage and grass areas which are surrounded by forested mountains. There are numerous extensive parks such as North Park, Middle Park, and South Park, plus many smaller units of similar structure. It appears that there is no common geological origin, as might be suspected, but the reason for their existence probably lies in the water-holding power of the soils. Trees are favored by loose permeable soils where water is stored comparatively deep beneath the surface. But grasses and other low-growing plants such as sedges and many herbaceous plants are favored by soil that holds moisture near the surface. In each of the parks, there is either poor drainage because of topography, or else there is a rather heavy soil that is not favorable to tree seedlings.

In this article numerous plants have been mentioned and many others hinted at without specific mention. The reader who wants to learn more about the composition of plants by zones will find M. Walter Pesman's little book, "Meet the Natives," most helpful. In this little book, so simply written that amateurs can easily use it, the plants are described according to their flower color and grouped according to the zones in which they are found. Horticulture House has copies available.

ECOLOGY OF THE GRASSLANDS

HELEN MARSH ZEINER, *University of Denver*

We, who live in Denver, are living on the western edge of the Great Plains, an immense expanse of grassland extending from southern Canada to central Mexico, and from the woodlands of the east to the foothills of the Rockies. This area comprises the greatest part of the ecological formation known as the grassland climax. This is an area in which there is enough moisture to support the growth of grasses, but not enough to maintain trees except along streams or in localized areas where there is additional moisture available. The grassland climax is the most extensive climax formation of North America, and it is also the most varied, due to differences in the amount of rainfall, length of time soil moisture is available, relative humidity, and soil structure. On the basis of the differences in the grasses present, the grassland climax is divided into the following groups:

1. The true prairie is an area of mid grasses (those intermediate in height) adjoining the mixed prairie on the west and merging into tall grasses on the east. The tall grass prairie, as the name implies, is an area of very tall grasses, six to eight feet in height, and it is primarily the easternmost part of the Great Plains.

2. The coastal prairie, along the Gulf of Mexico, is a region of high rainfall, but evaporation is also high. There are many species of grasses present, mostly mid grasses.

3. The mixed prairie is so named because it is made up of a mixture of mid and short grasses. This formation covers the largest area of any of the grassland associations. Much of this is now in short grass, ecologically a disclimax (disturbance climax) of the mixed prairie.

4. Desert plains, the driest of the associations, occurs in southwestern Texas, southern New Mexico and Arizona, and northern Mexico. It is a true short grass climax.

5. The Pacific prairie in California is now almost entirely under cultivation or destroyed by fire and overgrazing. It is an area of bunch grasses intermediate in height.

6. The Palouse prairie is a bunch grass prairie of eastern Washington and Oregon, southern Idaho, and northern Utah. The grasses are intermediate or tall.

All the grasslands of eastern Colorado belong to the mixed prairie, although most of the area is at present in the short grass disclimax. This is because the short grasses were damaged less than the mid grasses by overgrazing, and as a result they have generally replaced the mid grasses. For a long time it was believed that this short grass condition was a climax for the Great Plains, but it is now well understood that this is actually a mixed grass prairie, and the short grass indicates over-grazing. Evidence to support this view is the fact that in places which have been protected from grazing for many years, the mid grasses are present and we have the composition of a mixed prairie. The old family cemetery, fenced to keep out the stock, is often a good place to see this. Also, in short grass areas fenced more recently, the mid grasses have returned or are returning. Descriptions of the prairie by early travelers and photographs from the Hayden Geological Expedition of 1870 make it evident that

this area was once a mixed grass prairie—the mid grasses are much in evidence.

The short grass cover in eastern Colorado is primarily *Bouteloua gracilis* (grama grass) and *Buchloe dactyloides* (buffalo grass). Among the mid grasses we should expect to find *Agropyron smithii* (western wheat grass), *Andropogon scoparius* (blue stem or prairie beard grass), *Sporobolus cryptandrus* (drop seed), *Stipa comata* (needle grass), and *Aristida longiseta* (three awn). The taller grasses are generally more abundant in swales, bottomlands, and drainages where the additional moisture available tends to compensate for the pressure of grazing.

We should not lose sight of the fact that the prairies also support plants other than grasses, some of which are very beautiful and make the prairie bright with color when in bloom. These flowering plants will vary with season and locality, but in any prairie some will be present to break the monotony of the grass cover. Among the common "weeds" we might find the common little orange red mallow called by some "cowboy's delight," various asters, butterfly weed, yucca, and cactus. Russian thistle, while far from being ornamental, is often present. In swales and along streams we find some shrubs such as wild roses and fragrant sumac, and in drier places, rabbit brush. For trees we have that truly majestic plains tree, the cottonwood, following the streams and outlining their course through the prairie.

Driving east from Denver today we see much prairie land well-covered with the above mentioned plants, but we also see many expanses which have a very sparse plant cover of weedy plants with much cactus and yucca. Some of these areas are badly eroded. Much of this is directly due to overgrazing; some is due to plowing and then abandonment of the fields. If a person who had made the trip across the great expanse of plains a hundred years ago could make the same trip today, he would be much more justified in using the term "Great American Desert" which was so popularly used in his era to describe this section of our country. He certainly would find it difficult to realize that he was traversing the same area, for a hundred years have made a hundred changes.

Let us try to project ourselves back in time to that long-ago period when the prairies were virgin territory. By 1850 or thereabouts, the farmers had reached the eastern edge of the Great Plains, but here they halted, and it was not for another fifteen or twenty years that they made any appreciable inroads into this vast grassland. It remained a formidable and largely unknown area to be crossed by the traveler on his way to the gold fields. Captain Fremont was sent by the government in 1843 to explore the country between the Mississippi river and the Rocky Mountains. In his account of his travels one may find references to the luxurious growth of grasses. He tells of camping July 3, 1843, on the south fork of the Nebraska, where the grass was very long and thick and full of mosquitoes! His account lists several tall and mid grass species.

Another early traveler who left an interesting account of his trip was Bayard Taylor, who visited Colorado in 1867. At a location 175 miles west of Fort Riley, he describes the boundless swells of grass and flowers to be seen, and comments that "the Great American Desert offers the finest pasturage in the world." The geologist F. V.

Hayden, who was sent by the United States in 1870 to survey this western area, makes various references to the grasslands. For example, he writes of the western half of Nebraska as being a "treeless almost waterless plain; yet thick, low, sweet, nutritious grasses cover the entire surface, and for raising large herds of stock . . . this country is admirably adapted." Hayden also left pictures which show how well clothed with mid grasses our great plains were at this time. The Omaha Daily Herald, June 5, 1870, describes the valley of the North Platte, saying that "nearly all this area, 2000 square miles, is covered with a dense growth of grass, yielding thousands of tons of hay."

What has happened to change conditions so? Perhaps one key lies in the above quotation from that paper of long ago. The agriculturists finally invaded the grasslands, and in various ways began to alter them to their own uses. Cutting thousands of tons of hay, probably with little thought as to whether or not it was being cut too frequently, was but one way man began to exploit this rich territory. First came the cattlemen, who brought in great herds of cattle to feed on the lush grass. Then came the homesteader with his plow. It has been said that it sometimes took six yoke of oxen to break the sod, but it was broken, and planted in crops.

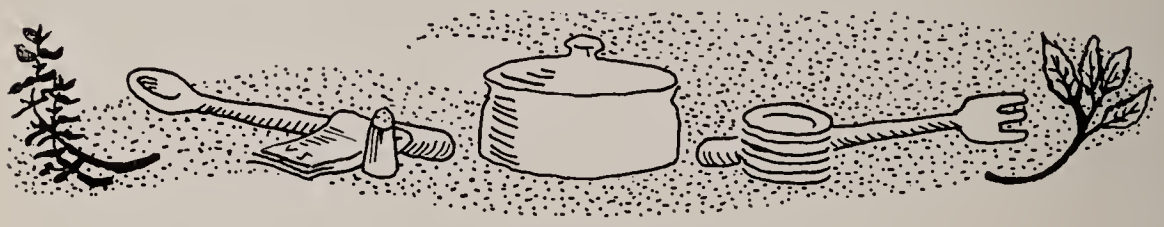
Now in the eastern part of the Great Plains where once grasses as high as a man's head or even higher grew, we have great fields of corn. This part of the prairie has become such an agricultural center that there are few areas where one can find stands of tall grass remaining. As the plow came west, the crops changed to wheat, and thousands of acres are now plowed and cultivated and converted to wheat fields. Of course we all know the stories of the dust bowls, where man plowed under the good earth-holding sod of grazing land and planted it to crops for which it was never suited. In our two major wars we have seen the same thing happen, and it may happen again if the situation ever arises, for we are slow to learn when the possibility of quick and easy money beckons us to turn the other way.

In eastern Colorado, in the drier part of the Great Plains, much of the change is due to the effects of grazing. The mid grasses have been cropped so continuously that they appear to be gone forever, and the short grasses remain. However, there are bright sides to this, for in areas where grazing has been reduced the mid grasses are returning. There is just enough moisture for the mid grasses to grow, and where they are not kept in disclimax by grazing, we will find mixed grasses.

Abandoned lands pass through various stages of plant succession and eventually after a long period of time, will reach the climax for the region in which they occur. On abandoned lands in eastern Colorado we first find annuals such as Russian thistle, pigweed or lamb's quarters, sunflowers, peppergrass, amaranth, and knotweed. This stage is followed by a growth of annual and perennial forbs and a few grasses. Such a stage may last for several years. Then perennial grasses such as foxtail, drop seed, bottle-brush grass and tumble grass will come in for a short period. An *Aristida* or three awn stage then follows and may last for a long period of time. Eventually there follows a transition to the mixed prairie. However, if this land is returned to grazing at some stage below the climax, the climax may never be reached.

Of course we can never return to

the grandeur of the untouched prairie, or would we want to, but we should be acquainted with the potentialities of what we have—and it would harm none of us to encourage a few conservation measures. When we consider the changing aspects of the prairie, and the orderly way in which nature attempts to return to the climax condition in spite of all man's efforts to alter the situation, we perhaps have a better understanding of the vast region in which we live—as it was once, as it is now, and as it may become under our usage.



THE HERB CORNER

TANSY. Tansy *(Tanacetum vulgare)* is a native of Greece and Crimea but strangely has not been found in ancient records, although Charlemagne grew it at Aix-la-Chapelle (830 A.D.) and the Benedictine monks of Saint Gall cultivated it in their physic garden. In 1265 it was called *tanesie* in Germany and Sir Arthur Conan Doyle says in *Sir Nigel* that the peasants of 1348 A.D. used many "tea-like drinks which cost not a penny—mallow tea, tansy tea, and others, the secret of which passed."

During the fifteenth century, there are records that tansy was used in the curing of ale both in France and England where it was also highly favored as a medicinal herb. The tender foliage, fresh or dried, was steeped and the tea given for flatulence, children's colic, abdominal cramp, gout, and even for the plague.

In the fifteenth century small cakes containing bitter tansy juice were eaten at Easter as an annual reminder of the bitter herbs eaten by the Jews at the Passover Feast. Later the cakes were replaced by puddings.

Then from this grew the custom of serving puddings during spring as a blood purifier after a long winter without vegetables. Still later a main dish with eggs was flavored with tansy which came to be called "a tansy." As late as 1860 an apple-tansy is mentioned in cook books.

In Colonial America tansy was widely used and by 1785 it had been naturalized over all New England. The plant is still listed in the United States Pharmacopoeia, chiefly for its use as a tea to avert colds. It was also used as a cold decoction during convalescence from fevers and jaundice, as an anthelmintic, and externally on bruises, tumors, and inflammations. The drug is a powerful one. Too strong a dose can result in vomiting, convulsions, and even death. It is cultivated in some states and the herbage distilled for the use of pharmacists.

Here in Denver many people use tansy as a decorative, high-growing, yellow flower in landscaping, but few realize they have an historical herb of former culinary and medicinal importance.

—MELANIE B. BROWN

NORTH CHEYENNE CANYON

Offering Year Round Pleasure for Nature Lovers

By JANET CHAPMAN

North Cheyenne Canyon, one of five metropolitan parks owned by the city of Colorado Springs, is a typical mountain park with towering granite walls above a winding road that follows a swift stream. It is the only park in the metropolitan system with running water, and hence has been a favorite hiking and picnic spot for years for visitors as well as Colorado Springs' residents.

Near the mouth of North Cheyenne Canyon, there is a rapid transition from strong sunlight, dry, tense air, and the sparse vegetation of the plains to the welcome and refreshingly cool shade and moisture of lush canyon growth. Here, in spring, flowering shrubs and a wide diversity of other material follow through into summer bloom, contributing exciting color.

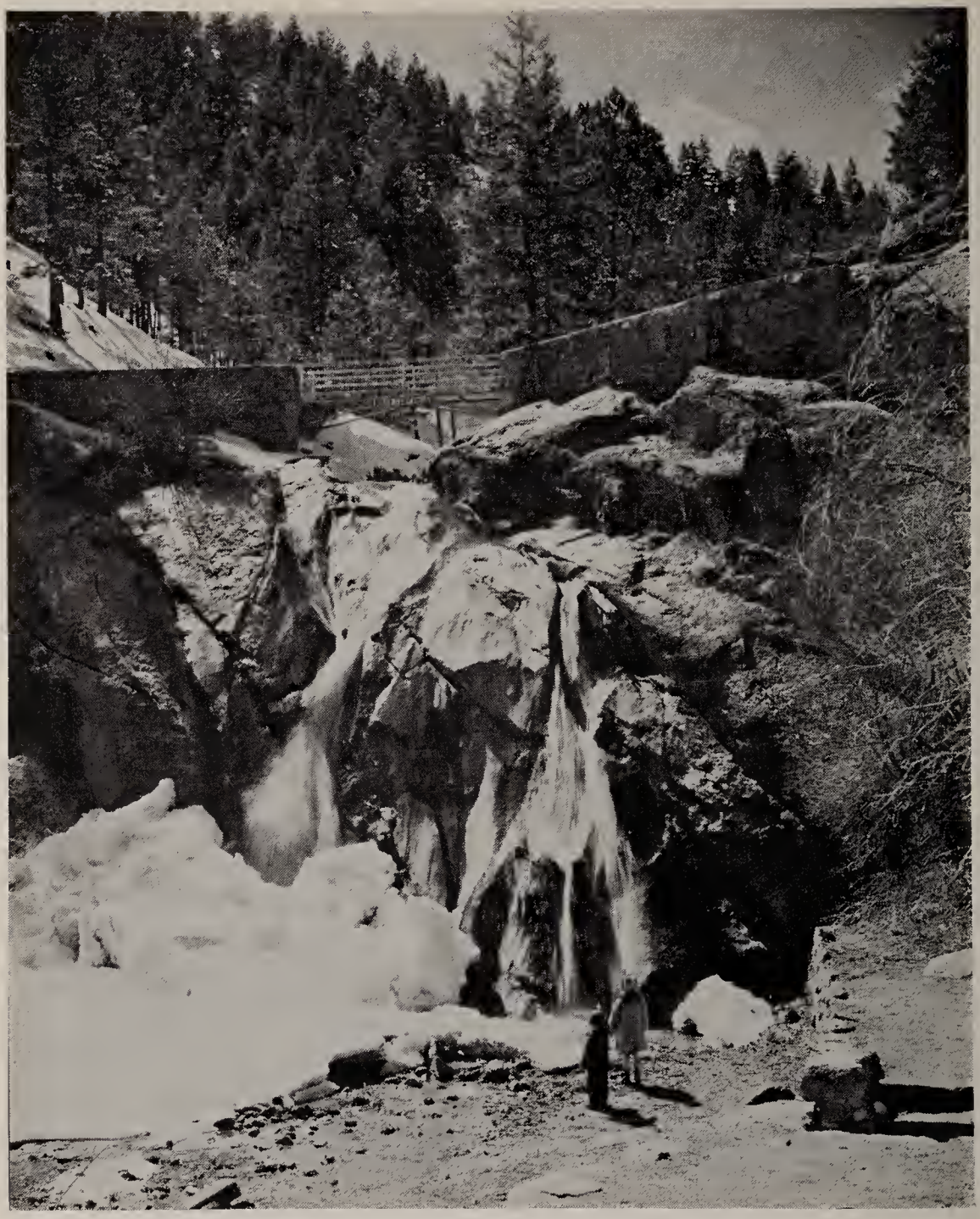
Besides a transition in vegetation at the canyon mouth, flat plains change into rugged granites in the space of a few rods. It is like going through a portal into a roofless cave. The plains are left behind. The hills are embraced in cool, moist, perfume-laden air. In an ever changing variety of narrow passes and wooded vistas, the canyon opens and closes along the 2½ miles of roadway between the entrance and Bruin Inn. Helen Hunt Falls, above Bruin Inn, affords a pleasing farewell glimpse as the High Drive winds up through forestry property, over the divide, and down into the city watershed property in Bear Creek Canyon.

Mt. Cutler, elevation 7350 feet, is the highest point in this park property. General William Palmer developed a carriage road through the canyon and over the High Drive. One mile up the canyon he built a pavilion, and a foot trail to the top of Mt. Cutler with other connecting trails before giving the property to the city. For years, the Colorado Springs Mountain Club maintained the Cutler Trail for nature study.

And now let us visit the Canyon through four seasons starting with early spring and May to see what trees and shrubs it offers. Always, there are the handsome towering evergreens which thrive in the cool moisture. There are many specimen trees of white fir and Douglasfir, as well as group plantings of them on north facing slopes where shade and deep snow drifts give extra moisture. South facing slopes support yellow pine, a lover of warm, dry areas, and occasionally a limber pine at higher altitudes. These evergreen trees furnish a handsome background for the changing colors of blooming and fruiting shrubs as well as for deciduous trees. At the mouth of the canyon, a grove of tall willows glows a warm yellow in very early spring and then as the season advances, turns a lovely chartreuse.

Immediately visible are large areas of fragrant flowering plum scattered among the scrub oak on the drier slopes while north slopes produce a riot of wild cherry. These masses are startlingly white against the evergreen background. Interspersed are catkins of pussy willow, aspen, birch, and cottonwood which lend subtle shades to the scene. Dense clumps of mountain maple blend in soft color tones.

Maturing spring along stream margins brings the spicy fragrance



Lower center—Helen Hunt Falls above Bruin Inn in North Cheyenne Canyon.

of golden currant, a shrub with yellow tubular flowers. Skunk bush, sometimes called ill-scented sumac, is also found with its yellowish-green flowers that turn into red berries in fall. A spring contemporary is beaked hazelnut. Replacing in sequence the white plum and wild cherry, showy chokecherry and gooseberry (with its greenish-white flower) come into their own. Next, lovely thimbleberry, with blooms so like single white roses, touches the landscape. Delicate strokes are furnished by pink wild roses and exquisite florescences of ninebark, a very attractive shrub with large clusters of feathery flowers tipping

the ends of its branches. Then meadow sweet joins the parade. Here and there can be found dogwood with reddish-purple branches laden with creamy four - petaled blooms to be followed later by white berries. Then a surprise. In among all this native material flourishes a large apple tree in full bloom, indicating soil conditions and moisture are favorable for plants other than native ones.

In ever increasing numbers summer picnickers flock to this green canyon retreat to enjoy their increased leisure hours. Toward the end of summer, those who like to make jelly harvest wild plum, wild cherry, and raspberries. But squirrels are usually first to find and harvest the beaked hazelnuts in the rare years the nuts form.

With the coming of fall, many bright colors appear both on the ground and on the trees and shrubs. The most brilliant is the foliage of poison ivy, Virginia creeper, and scarlet sumac. The scrub oak leaves turn a warm bronze and rusty red. Narrow-leaf cottonwood adds a rich yellow and birch a soft yellow. Aspens will be yellow too, but with touches of red. Chokecherry leaves are brilliant red and so are plum leaves. Willows turn a warm gold, late. After all the leaves are shed the wild rose and waxberry take on a lovely rich vermillion.

Snow comes early and stays long on the north slopes of this canyon, and for many, the winter landscape is the loveliest one, especially after heavy snows mantle the evergreens, completing the year's cycle from white to green to white. I'm sure you will agree with me that a trip to this conveniently close park in any season of the year, where such variety of native trees and shrubs flourish, will prove most rewarding.

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Before. In 1953 the grading was done and the rock walls built, but very little landscaping had been done.

How I Developed My Backyard Garden
A Backyard With A View

MARGARET M. BIVANS

The following article won second prize in our writing contest, "How I Landscaped My Backyard."

The Flatirons in sun, in shadow, in the Alpine glow of early morning, or surrounded by clouds—the trees of Boulder turning green in the spring and yellow in the fall.—myriads of lights at night—this is our back yard. From our hill we look over the tree tops of Boulder to the mountains and plains. The landscaping we do is chiefly to frame and complement our view. We also want to obtain privacy, attract the birds, and raise fruit for our own use.

The house is built on the slope with a garden-level apartment opening at the back. The back yard is laid out in terraces. Fifteen or twenty feet back of the house there is a dry wall with two stairways, all of Lyons sandstone, separating this level from the next which is about seven feet lower. A sloping bank and a short flight of stairs drop down another three or four feet. About fifty feet south of this a wire fence tops a concrete retaining wall which drops down another ten feet. The hillside below is not visible from the house. Because of a south exposure and frequent winds our climate is unusually dry.

When we bought the house five years ago one of our first additions was a garage west of the house—a low one, with a flat roof, so it would not obstruct the view. Later we added an exit from the kitchen and a walk between the house and garage. Before we did much planting we fenced the backyard so that dogs can be kept out. Back of the

garage we made a sloping ramp down which we could take the lawn mower.

We have planned three outdoor living rooms. Along the south side of the house a flagstone patio was made for the use of the apartment tenants. The clotheslines are also on this level. Attached to the side of the garage, where we can observe them from our kitchen, are a bird feeder and a swallow house. Below this is a bird bath backed by two Austrian copper roses where birds can perch while awaiting their turns to bathe or drink.

The second outdoor living room is a deck and balcony above the patio, which was added last summer. It fills the area between house and garage and extends along the south side of the house. Outdoor eating is convenient here as it opens off the kitchen and the window can be used as a pass-through.

The third outdoor living area is the lawn in the east part of the second level. Close neighbors on the east have a balcony overlooking our backyard. To gain privacy we planted chokecherries, Russian-olives, a Washington hawthorn and other trees and shrubs below this balcony. To provide shade, we placed a flowering crab and an apple on the south side. Three Trees of Heaven in the southeast corner were volunteers which we decided to leave for a quick effect. To screen the area from our basement windows, we planted a group of choice shrubs on the slope east of the steps. In another year or two the trees and shrubs should be large enough to give us a secluded, shaded area of lawn for relaxing.

We got the fruit started during the first two years, and it has begun producing. Small fruits were worked into the shrub borders and grapes



After. As it appears today with garage, balcony, and landscaping.



A shaded area—a place for relaxing in the backyard.

trained on the wall. Cherry, pear, and peach trees were located east of the house where they would be protected from the west winds and from the hot afternoon sun. Each was placed strategically between a bedroom or bathroom window and the neighbor's porches. Privacy for the basement windows will be secured by groups of French lilacs and spirea along the outside border. Since a weigela has bloomed beautifully in this protected habitat, I am going to try a pyracantha — neither is considered absolutely hardy in this area.

Pinyon pines, a Paul's Scarlet hawthorn, and viburnums along the west side of the lot balance the east side. Lower plantings were used toward the more important view to the southwest. In front of them, as a specimen tree, a white clump birch shows up nicely from above against a Mugho pine and from the lower level against distant Green Mountain.

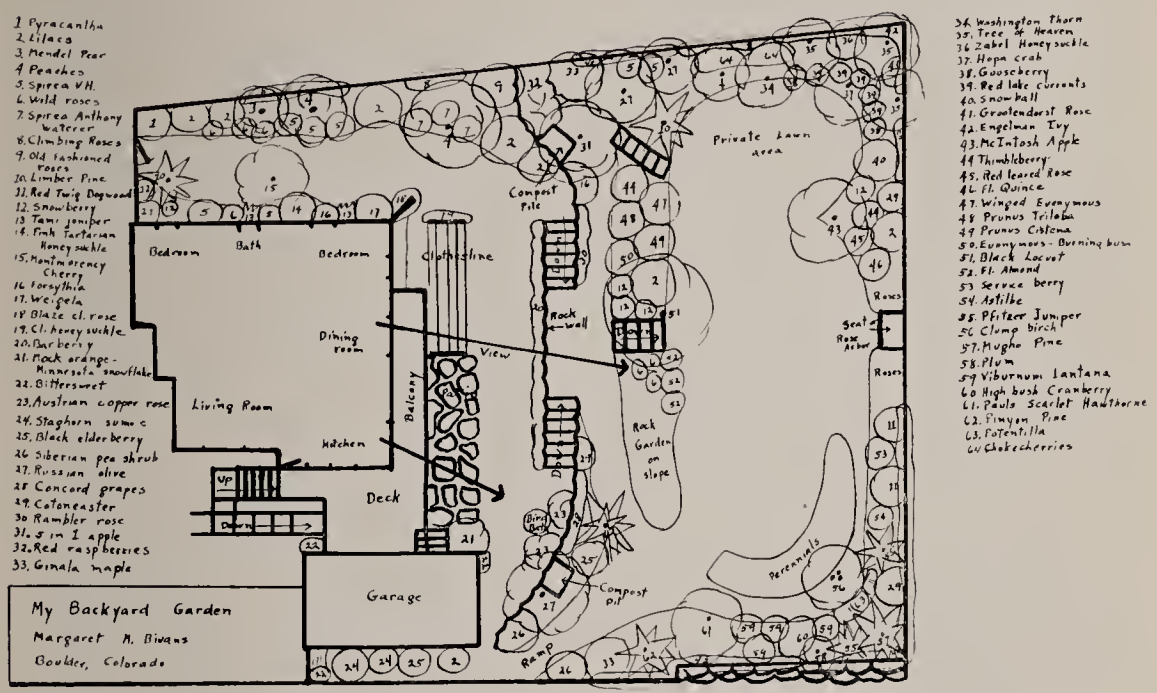
In developing our plan we have tried to create pictures for all seasons of the year. In winter the snow is caught in interesting forms on flagstones and pines. The dark bark of Russianolives and red twigs of dogwood add to the winter picture. From January to May there are blooming bulbs beginning with crocuses next to the house, then many varieties of narcissus and tulips planted under the shrubs. In April and May we also have the blooming trees, shrubs, and iris. Then come the climbing and shrub roses. Potentilla bushes begin blooming in May and continue all summer.

At first, summer bloom was largely annuals such as cosmos, larkspur, and calendulas — all self-seeding kinds—which were planted in the outside borders. Now that the shrubs are beginning to fill their assigned spaces, we are turning attention to perennials in a rock garden built along the slope west of the steps and in a new bed in front

of the shrub border. Directly opposite our south picture window is a small rose garden where I want an arbor as a central feature.

In the fall there are the chrysanthemums and the changing leaves. Engelmann ivy on the fence displays red leaves and provides berries which the birds like. Euonymous bushes and Ginala maples turn crimson and scarlet. When the leaves drop, high-bush cranberry and hawthorns show red fruit and cotoneasters, black berries.

As the creative part of our landscaping is being completed, we will be spending more time lying on the shaded lawn or sitting in the sun on the deck enjoying the garden and the view beyond as they change from season to season.



The Peter Housel family planted the first walnut tree in Boulder, Colorado, in 1859, just north of Valmont Buttes.

Fruit trees were unknown in Colorado until 1862 when some plantings were made in Clear Creek.

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PLANNING AND DESIGNING OF SPRINKLING SYSTEMS

By RAYMOND KEESEN

PART II

The efficiency of a lawn spray system is determined in the design stage; therefore, the installation of a concealed lawn sprinkling system should never be a matter of guess work. All the factors involved must be definitely recognized when the location of the piping and sprinkler heads is being considered. Water pressure, size of meter or street service connection, spacing of heads, and size of the pipe throughout the circuits are all of vital importance in the planning of an effective and fully satisfactory sprinkling system. An *efficient* sprinkling system is an *economical* sprinkling system.

In planning a system, several factors must be positively determined:

1. Size and distance of water supply.
2. Pressure available.
3. Dimensions of each area to be sprinkled (preferably a scale drawing).
4. Location of buildings, shrubs, gardens, etc.
5. City water restrictions — if any.

With this information on hand the designer may proceed to lay out a system. The materials which he uses, such as type of pipe, i.e., copper, plastic, galvanized iron, etc., should be mutually agreed upon by the customer and the designer. First the designer chooses a sprinkler head made by any one of a number of reputable manufacturers. After acquainting himself with the capabilities of this head he may begin to plot heads on the drawing.

There are two distinct ways of spacing sprinkler heads. They are the square spaced system, and the triangular method. The latter is by far superior. If the closer, square spacing is used, the blending of the precipitation patterns with the square spacing would produce a much more uneven pattern than with triangular spacing. The place where triangular spacing really shines is where a wind condition exists. The triangular arrangement makes it very difficult for the wind to break the pattern whereas the square spacing is vulnerable from almost any point.

Triangular spacing is, of course, more awkward to use and the results are not as pretty on paper as square spacing. The result obtained in the field, however, more than justifies the effort and sacrifice of esthetics.

The simplest way of using triangular spacing is to use half-circle sprinklers out in the battery to take up the slack where the stagger spacing meets a straight border. It may look a little strange to see a row of half heads immediately in front of every other one out in the lawn but this is the best method of changing from a straight row of sprinklers to triangular rows out in the system. This also results in a better precipitation balance than can be obtained by using an extra full circle sprinkler.

In the quest for economy some designers will use full heads along borders instead of half-circle heads. This is *false* economy because the edges of the turf must either be excessively dry or the sprinklers must throw great distances into the street or on adjoining property. This invariably causes trouble with the neighbors.

Large diameter pop-up sprinklers create a few problems that are peculiar to this type of equipment. Most important is the difference in precipitation rate between the half and full circle rotary sprinklers. If the half and full circle sprinklers in a system had the same rate of discharge, the half-circle sprinklers' rate of precipitation would be twice that of the full circle head, because it covers only half the area with the same amount of water. Thus the halves and fulls must be separated into separate batteries of sprinklers.

While this is true of most rotary sprinklers, some of the smaller diameter sprinklers are set up so that the GPM discharge for the full is twice that of the half, which balances the precipitation rate allowing half and full circle sprinklers to be placed on the same line. This generally cuts the cost of the system by reducing the amount of main line that has to be used.

If the designer, then, will just strive for an even coating of water on the area to be sprinkled, a vast amount of time, water, and money will be saved. This in turn will produce an even, velvety turf.

PART III.

AUTOMATIC CONTROLS

Ever since man began doing landscape work—planting lawns, putting in gardens, etc.—he has had to contend with the watering problem. This has led to the problem of under and over watering. Even with lawn sprinkler systems installed, he still had this trouble, for even though he did have the advantage of planned coverage, he still had to turn the water on and off.

Moreover, he had to guess as to the amount to be applied. Dependence upon the plant-sensitive gardener leaves most irrigation specialists pretty cold. They have found that the gardener who does his watering by "feel" generally is in error.

Here are some worthwhile facts pertaining to the subject of automatic controls:

The convenience of night time sprinkling when grounds are not in use cannot be underestimated. The automatic control measures out a predetermined amount of watering time and there is no forgetting to shut it off at the proper time as so often occurs in manual operation.

Money invested in labor for operating a manual sprinkler system is a cash outlay lost to the owner forever. Money invested in labor saving devices remains the property of the owner and becomes a dividend paying investment.

After your purchase cost of a manual control system, you will add each year thereto, the cost of labor for operating the system in the daytime. Whereas, if you purchased an automatically controlled system of the same number of heads, while you invest more money initially, this increase pays for itself in less than 1½ years. From then on you are returning some of the capital outlay on the original purchase of pipe, fittings, sprinkler heads, labor, etc. In a few years, you have saved or regained your entire capital outlay one hundred percent.

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DENVER BONSAI CLUB

By MARIAN TALMADGE and IRIS GILMORE

Those of you who were fortunate enough to see the Bonsai exhibit at the Japanese Association Hall this past winter will agree that it was truly a rewarding experience. Bonsai is a Japanese word meaning "dwarf tree in a shallow container."

There were some 200 trees and plants at this first showing of the bonsai in Denver. The oldest tree was a 200-year-old hemlock which belongs to Frank Torizowa. It is sixteen inches high and the trunk is three inches in diameter. Most of the trees, however, were about fifty years old, but there were some rare varieties developed in Japan and real family heirlooms handed down from generation to generation.

Since exhibitions of this kind don't "just happen," we talked with Mr. George Fukuma, president of the newly organized Denver Bonsai Club. As so often happens, we found the club had an interesting background. It seems that Mr. Shiichi Fukuhara* of Englewood, Colorado, invited his Japanese friends to his home on New Year's Day to see his prized bonsai—a miniature flowering plum tree.

"The plum, the fir, and the bamboo are considered happiness trees in Japan," Mr. Fukuma told us. "They bring joy for the New Year. In Japan, the plum trees

*Some of you probably remember visiting Mr. Fukuhara's fascinating garden on California street on a Look and Learn Garden Tour a few years ago.

usually bloom in January—even in the snow. That's why Mr. Fukuhara invited his friends — to share his bonsai."

Many of the guests owned bonsai too and they traded tales about them. During the discussion an idea was born spontaneously. Someone suggested that they organize a "Bonsai Club." The idea took fire and before the afternoon was over about forty men agreed to become members.

They promptly elected George Fukuma president and made the purpose of the club the spreading of the culture of bonsai—miniature trees — in America. Some of the older men agreed to act as a board of directors.

Their choice of Mr. Fukuma for president was a happy one. A successful Japanese business man and an importer of oriental art, Mr. Fukuma is filled with good ideas and enthusiasm for promotion of the club.

His first project was to hold the exhibition of the bonsai open to the public. He knows the value of publicity so he persuaded a *Denver Post* reporter to cover the exhibition. As a result he got two good news stories as well as pictures.

According to Mr. Fukuma, "The bonsai is a tree which is usually allowed to grow no more than eighteen inches in height. Anyone can grow one. Just choose a sapling about three years old and plant it in a shallow container using a small amount of earth. Then it must be stunted. Add only limited amounts of fertilizer. Trim the root system frequently. Daily spraying is advisable."

He added that the tree could be forced into queer shapes by binding the branches with wire. A nail pushed into the shallow soil provides enough iron.

Mr. Fukuma and his friends do not use saplings, however. They go up to our nearby mountains and search out trees which have been stunted by nature. These small trees are usually growing in cracks or crevices in the rocks in just small amounts of earth. Often their shapes resemble the grotesque trees at timberline. They have survived adverse conditions and make good bonsai. The trees are usually ten to twenty and even fifty years old or more.

"We always get permission from the U. S. Forestry Service or the private owner before we remove trees," Mr. Fukuma assured us.

In the Denver area, evergreen trees are the most popular because of their availability in the nearby mountains. But Mr. Fukuma explains that any kind of tree may be used — maple, linden, ash, cherry, plum, etc. Tiny bamboo trees make particularly pretty miniature forests.

"In creating a bonsai," Mr. Fukuma warns, "it should be kept simple and the tiny tree should dominate the scene. In addition moss, grass, small figures and lichen-covered rocks are used."

Bonsai may be purchased too. Mr. Fukuma has some for sale in his shop on Larimer street. The prices vary from about $25 to $50 depending upon the age of the tree, the worth of the container, the intricacy of the design as well as other features. But he encourages interested persons to make their own because it is more fun.

To those of us interested in gardening the history of the bonsai is intriguing. In Japan the oldest ones date back about 700 years. It seems the custom came about because of city dwellers who wanted to bring a bit of the outdoors into their homes.

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Every Japanese household, no matter how poor or small, has a tokonoma or small alcove set aside as a place of honor. Here the family puts its treasured painting or picture or religious statue and usually the bonsai.

During chrysanthemum time in the fall, bonsai exhibitions are held in small secluded parks. Families take great pride in sharing their prized heirlooms and visitors come from near and far to enjoy the miniature trees. It is also a custom among Japanese families to start a bonsai for a newly married couple so that it may become a part of their family tradition.

We're glad that such a pretty custom has been introduced to us by our Japanese friends and neighbors. We think our Denver Bonsai Club had a real contribution to make when it decided to help spread the culture of the bonsai in America. We wish it every success and are looking forward to its next exhibition.

While there are several reasons why clover is undesirable in bluegrass lawns, the over-seeding of dwarf white clover might be the practical solution to "melted-out" areas. Helminthosporium blight or foot rot infection has caused many sick appearing lawns; in some instances nearly all of the grass is gone. It will take considerable time and good care for the remaining grass to revegetate the thinned areas and weeds may become a problem. Clover will give quick cover. When the areas are revegetated either by natural spread or by seeding of grass and if the clover is no longer needed or wanted it can be killed by spraying with 2,4,5-T. —C. M. D.

Stone Walls. Stone Walls are good permanent fences; but on flat or slightly undulating surfaces, they often hide a considerable breadth of view, especially when employed as internal divisions. For plantations they are less objectionable, as the trees overhang and vail them. They are best suited for hilly and mountainous countries, and in these they may be freely employed, as the objections which may be made against walls in other places are there less applicable.—From *Landscape Gardening or Parks and Pleasure Grounds* by Charles Smith, 1856.

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GARDEN BRIEFS

By MRS. JOHN SCOTT

Here in the Centennial State, August is unquestionably the month of flower shows. Not only are more shows staged each year, but more and more people view them. Usually the people just mentioned, who make-up the public, are those less schooled in flower show standards, or more specifically in flower show schedules.

How often have you over-heard a visitor to such a show exclaim in concern: "Well, I don't see how any Judge could keep from giving that striking design over there a ribbon." Most often the reason and answer is that said exhibitor didn't stick to the schedule. Let's pretend that the schedule calls for "a design featuring driftwood." Maybe the cherry boughs were outstanding, but conscientious judges can't ignore schedules.

Or, perhaps, Mr. and Mrs. Public are admiring a stately design that draws all eyes. Again, they are aghast to find no ribbon. But should a class calling for patio designs in this windy country be tall? So, there's the utility angle, too. Naturally, there's much more, but I'm sure you can see that, like hidden taxes, there's more to a show than meets the eye.

The Colorado Federation of Garden Clubs, Inc., is probably better known for its shows than any other one project. But there are many fields of interest, and conservation is one of them. Calling for attention right now are bills before the legislature on wetlands, wildernesses, refuges, and insecticides, all concerned with conservation. The Federation identifies itself with these and other related programs and resolutions. Informed themselves, they seek to contact their senators and representatives as well as other influential citizens.

Nor is all of the Federation's work amongst seniors, since the juniors are included both individually and collectively through national youth organizations such as the Scouts, Camp Fire and 4-H. These offer gardening programs to which the Federation is able to add skilled leaders, instructors, specialized training, workshops, entertainment and literature in the broad area of nature study, horticulture, conservation, flower arranging, and flower show practice. In addition, the Federation organizes and sponsors junior clubs interested mainly in gardening, with its many phases.

Gardening has led the list of hobbies for years, or so we're told. But no longer does the dirt-digger isolate himself in his own backyard. Oh, no, he is community and convention conscious, well knowing that in unity there is inspiration, and a lot of other "pepper-uppers" good for body and soul.

All this is a prelude to the State Convention to be held in Greeley, Sept. 23-24-25. Headquarters for horticulturists are at the Hotel Camfield. The theme is "Western Gardeners' Round-Up."

Rounded-up for this 28th Annual Meeting are Mrs. Daniel J. Mooney, National Council President, Montana, and Mrs. Garnett S. Cuddy, Rocky Mt. Regional Director, Kansas. Mrs. John Nickels, State President, and Mrs. John H. Kinkade, General Chairman, have a varied program including in part: "Greetings," by Mayor Oscar Beck; "Our Living Earth," Mr. David Sudduth; Landscape Tour, Charles Drage;

Trail Blazers' Luncheon; Gardeners' Chuckwagon; Early Risers' Chow, and other award-winning activities.

Gardening activities are on the increase! New clubs are coming into the Federation monthly, the latest being the Divot Diggers, Littleton, and Back Acres, Denver. Much of the interest is no doubt due to the shift to the suburbs and population increase. People from other parts are especially anxious to learn how to cope with their particular problem. Some need to know that not only is "Rocky Mountain Horticulture Different," but that the author is in their midst, and with even more help.

There's nothing like a gardening club for finding out "what goes" and "where to get it." If you're a newcomer either to the area or gardening, phone or write Horticulture House. There you will be referred to an established group, or to someone who can help you in organizing one amongst your friends and neighbors.

There are many and varied organizations promoting some or all phases of gardening. And what's much more important they're all working together and for you. Come on in "You would wear a membership well."

THE 13th AMERICAN HORTICULTURAL CONGRESS ANNOUNCES PRELIMINARY PROGRAM

Williamsburg, Virginia, will become the horticultural center of the United States when the American Horticultural Congress meets at Colonial Williamsburg for the 13th Annual Congress October 23-25, 1958. More than two hundred horticulturists from all over the nation are expected to convene for this event, sponsored by the American Horticultural Council and Colonial Williamsburg.

Highlights of the preliminary program include outstanding speakers on various phases of horticulture from Colonial Williamsburg and other parts of the country. A new animated film on horticulture produced by the American Association of Nurserymen, will also be shown. A panel on "What's New in Horticulture" will be a feature of the afternoon session on October 24. A tour of the Williamsburg Gardens is scheduled for October 23 with a post-Convention tour of Yorktown and Jamestown arranged for Saturday, October 25.

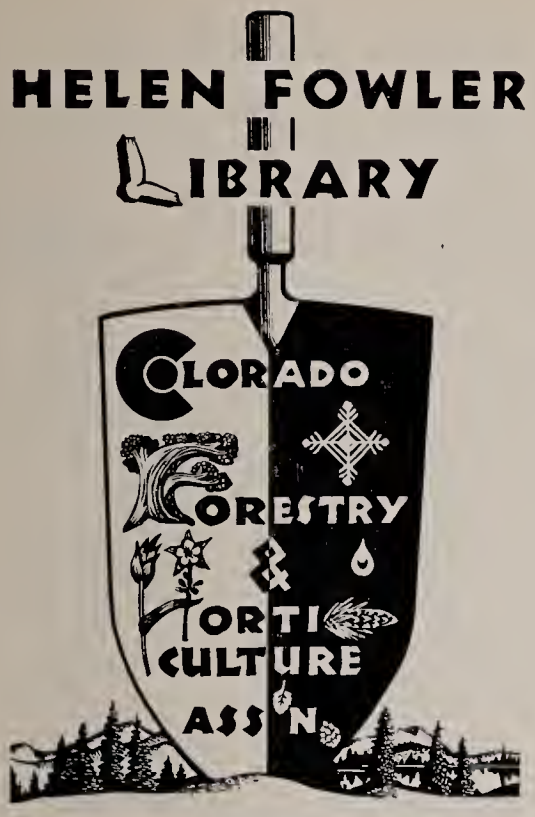
Mrs. Jesse F. Hakes of Glenwood, Md. is Chairman of this Congress. The American Horticultural Council consists of over 400 members, of which roughly 100 organizations represent all phases of the field. It acts as a coordinating agency for the advancement of horticulture as it influences and contributes to life in the United States and Canada.

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RARE OLD GARDEN BOOK ACQUIRED BY LIBRARY

Landscape Gardening or Parks and Pleasure Grounds with practical notes on Country Residences, Villas, Public Parks and Gardens by Charles H. J. Smith with notes and additions by Lewis F. Allen. New York: C. M. Laxton & Co., Agricultural Book Publishers, 140 Fulton Street, 1856.

So reads the impressive title page of this recent gift to the Helen Fowler Library. The book is an American edition brought out in the U. S. because, according to the Editor's preface, the land owners of the day had reached the point of civilization where they were beginning to have that "passion to improve and embellish their holdings for domestic occupation as they have done in England. We are learning this and we wish to learn more. Our taste is improving."

In a very thorough and practical way this charming book sets out to guide this budding quest for help and knowledge. The table of contents alone shows its worthy and ambitious scope!

Simply and carefully, in charming literary style, the author approaches his subjects. Take for example the artificial lake. "In the formation of an artificial lake there are two requisites of almost equal importance. The first is an adequate supply of water without which indeed, we may make a morass or weedy pool, but not a pleasing sheet of the liquid element. The second and not inferior object is a suitable site for the lake." The author declares that should the site not be suitable there will be "a want of truth and fidelity that will tend to excite aversion rather than pleasure in the minds of those who have been trained to a genuine taste for the beauties of nature." He draws the same conclusions for the use of rocks. A dip into almost any page of this 100 year old manual will be rewarded with sound suggestions and dignified philosophy still pertinent for us today.

THE SAGA OF A FOREST RANGER

By LEN SHOEMAKER

University of Colorado Press

$5.00

All Association members in Denver and many in the state must remember Mr. and Mrs. Shoemaker, the genial custodians of Horticulture House when it first opened it doors and for several years thereafter. Len Shoemaker is himself a retired Forest Ranger whose career dates from early days. His background and experience made him a "natural" for compiling this biography of William R. Kreutzer, "first" and foremost forest ranger in Colorado, for the two shared common memories.

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William (Billy) Kreutzer, when a mere boy in years, was appointed in 1898 as Ranger in the Plum Creek Forest Reserve by Colonel W. T. S. May, himself just appointed by Congress to direct the newly formed Reserves in Colorado.

The Plum Creek Reserve was younger even than the young recruit, who, with amazing enthusiasm, started the enormous task of fire control literally from scratch. At that time, Colorado forest conditions were incredibly bad and it is fascinating to contrast them with the present state of affairs under the Forest Service.

Kreutzer and a handful of other Rangers lived like Indians or Scouts. Billy's riding horse and pack horse were his home. His tools were rudimentary, the distances between fires great. He had to pit his strength, endurance, and courage against crown fires, blizzards, and enraged ranchers. He also had to cope with corrupt political appointees in the Reserves who, all too often, were out to "get him" because of his loyal attitude toward law enforcement. His life and works, full of struggle and hazards, make a corking adventure story which will be enjoyed by young and old alike.

Conservationists will find in this readable book the comforting thought that although there is still much to be done in the line of conservation education for the public, we have come a long way in correcting abuses since 1898. A pithy and peppery introduction by the late Gifford Pinchot is a fine addition to the book.

—Charlotte A. Barbour

Pikes Peak, mecca for botanists, is literally carpeted with rare and wild flowers, and new species are found here each year. Botanists from all over the world make yearly trips to this region to study the flora. They were always ably directed by the late Mrs. G. R. Marriage.

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AN ECOLOGICAL TOUR FOR SUNDAY DRIVERS

You can learn a lot of ecology by keeping your eyes trained upon the landscape. So why not try the tour suggested below and see how many things you can discover that have not been mentioned.

Approximate Mileage	What to look for:
0	Start at Eighth and Broadway and go west on Eighth and Sixth avenues towards mountains.
8 miles	Green Mountain to the left shows good native grassland vegetation with the beginnings of transition zone vegetation in places.
12 miles	Going up Mt. Vernon Canon on U.S. 40, note the beginnings of shrubs forming transition from grassland to montane forest.
15 to 25 (Take Bergen Park road at about 23 miles)	Note the abundance of ponderosa pines with their long needles, and on north slopes there are many douglasfirs.
26 miles	Just beyond Bergen Park, on the Squaw Pass road, when you reach the first cabins on the left at the upper end of a meadow, stop and look at the trees. Do you see the difference between the ponderosa pines and the lodgepole pines? At the site of these two mountain homes the transition occurs very abruptly from montane forest to subalpine forest.
35 miles	Stop at Squaw Pass and you are in the middle of the subalpine zone. Because of fires and lumbering, there is little of the spruce-fir forest here, but you can distinguish some signs of it if you look carefully. Most of the forest is now sub-climax lodgepole pine and aspen.
44 miles	This should bring you to Echo Lake, which is near the upper edge of the subalpine zone. Take the road to the left that goes up Mt. Evans.
47 miles	Stop here and look at the bristlecone pines at timberline. Note how they and the other trees seem to grow "down wind" because of the drying effects of the wind killing growth on the "up wind" side. Just above this area is the beginning of the alpine meadow vegetation. Here you find the taller, more showy species of alpines.
53 miles	At Summit Lake it is worth stopping and taking a walk up over the ridge to the east of the lake. Note that wherever the wind has swept the surface

only low-growing mat species survive. This moss-like vegetation survives all the way to the top of the peak if you care to drive up the rest of the way. I shall stop here, however, as it is too cold and cloudy higher up.

That reminds me, did you remember to put in your raincoats and warm jackets?

I hope that you enjoyed this trip and that you took some color pictures and made some records of the plants and animals you saw, especially those that have not been mentioned. You could have seen bighorn sheep, for example, if you were lucky and observant.

—MORAS L. SHUBERT

THE CONIFEROUS TREES OF THE CENTRAL ROCKIES

MORAS L. SHUBERT
University of Denver

Frequently I hear people referring to the "beautiful pine cones" in what is obviously a *spruce* tree! Now it may be just a loose way of speaking, but from other remarks, I am also sure that many people cannot tell one coniferous tree from another. So perhaps a simple memory device will help in both recognition of kinds and in remembering the differences.

All of the native cone-bearing trees in Colorado are members of the pine family *(Pinaceae)*. There are five native genera in this region, the spruces (*Picea*), the pines (*Pinus*), the firs (*Abies*), douglasfir (*Pseudotsuga*), and the junipers (*Juniperus*) which are too frequently called cedars.

Now here is the way to remember which genus is which:

1. Spruces have needles that are Stiff and Sharp-pointed.
2. Firs have needles that are Flexible and Flat.
3. Pines have needles that are in Packets of two, three, or five.
4. Douglasfir is not a true fir and it can be recognized by its cones which have "mice" in them. If you don't believe this take a good look, and see the tail and two hind legs of a little brown mouse under each scale.
5. Junipers have tiny scale-like leaves and their cones are fleshy and look like berries. We even call them "juniper-berries".

In Colorado we have five species of native pines, two spruces, two firs, four and possibly five junipers, and only one douglasfir.

If you learn to recognize zones of vegetation, it will be easier also to recognize the species characteristic of them. Robert E. More's book "Colorado Evergreens" is an excellent source of information for further study. Ask for it at Horticulture House if you do not already have a copy.

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The Green Thumb

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The Green Thumb

Vol. 15 SEPTEMBER, 1958 No. 8

Colorado Forestry and Horticulture Association

Orgonized in 1884

"To preserve the notural beouty of Colorado; to protect the forests; to encouroge proper mointenonce ond additionol plonting of trees, shrubs ond gardens; to moke ovailoble correct informotion regarding forestry, horticultural practices and plonts best suited to the climate; and to coordinate the knowledge and experience of foresters, horticulturists and gardeners for their mutuol benefit."

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The enclosed colored picture is a donation by Mr. S. R. DeBoer. It is his idea to run a series of these pictures to aid in brightening up the GREEN THUMB. You can save these and bind them. Eventually, he expects to have a whole volume of them and publish them separately. In the meantime, if you wish copies, you can have them from Mr. DeBoer at fifty cents apiece, or you can get all of them by becoming a member of the Colorado Forestry and Horticulture Association.

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THE COLORADO FORESTRY AND HORTICULTURE ASSOCIATION

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MEMO

Calendar of Events

"Fun with Flowers" — A lecture and demonstration is followed by the making of arrangements. Each person brings containers, mechanics, and material. The workshops are open to everyone. Due to popular demand the workshops will be held each month at the following times and places:

Workshop No. 1 — 1422 Kenton, Aurora, Second Thursday, 9:30 a.m. Chairman: Mrs. Fred Harper, 270 Jersey, Denver.

Workshop No. 2 — Lakeside Denver Dry Goods, 44th & Harlan, Denver, First Tuesday, 10:00 a.m. Chairman: Mrs. C. C. Buckbee, 4190 Depew, Denver.

Workshop No. 3 — Englewood State Bank, 180 East Hampden, Englewood, Second Wednesday, 10:00 a.m. Chairman: Mrs. H. E. Cluphf, 3888 South Grant, Englewood.

Workshop No. 4 — Arapahoe County Fair Grounds, W. Belleview and Windemere, Littleton. Third Tuesday, 10:00 a.m. Chairman: Mrs. John Sobiella, 386 North Windemere. Speaker—Mrs. Martin Rhodes on "Arranging with Fruits & Vegetables."

Sept. 10—Organic Gardening Club of Denver meets second Wednesday of every month, Horticulture House at 8 p.m.

Sept. 11 — Denver Rose Society meets second Thursday of each month, City & County Bldg., Rm. 100, 8 p.m.

Oct. 1—Botany Club meets the first Wednesday of each month, 7:30 p.m., Horticulture House.

Floral Art Course: Opportunity School. One year course starting in September. Every Thursday: 9 a.m.-11:30 a.m., 1 p.m.-3:30 p.m., 6:30 p.m.-9:15 p.m. There is no charge except for materials.

Garden Guide—Every Wednesday, 7:30 p.m., KRMA-TV Channel 6, Pat Gallavan, horticulturist.

The Green Thumb Program—Every Saturday morning on KLZ at 8:45 a.m.



WIND SCULPTURED WOOD AND DRIFTWOOD!

If you have an interesting piece of wood which you picked up some time and would like to have made into a beautiful and useful piece for your house, bring it to me and I will make it into something you will be proud of. All kinds of wind sculptured pieces for your yard and home can be made from Manzanita, Antelope, Cedar, and Bristlecone pine. I have a nice supply of all these woods at all times. Please phone for appointment.

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Arrangement of the Month

Mrs. Owen's arrangement of viburnum leaves and yellow talisman roses so artistically grouped in a gun metal container would be a charming addition in a room where a bit of height is needed. The viburnum leaves lend interesting texture and strength to compliment the solid pottery base.

Arrangement by Mrs. J. Churchill Owen

Photo by Jack Fason

COLORFUL FRUIT-BEARING PLANTS FOR COLORADO

By ERNST C. SCHEFFLER,
Rocky Mountain Assoc. of Landscape Architects

Sometime in early spring a salesman usually calls on new city homes with his book on blooming shrubs and trees in color. All of these plant species seem to be everblooming, at least on paper, and many people are tempted to place their orders, not knowing that the shipment from far away may turn out to be a very doubtful bargain! Many of these imports are but half alive on arrival. Others may leaf out and will fade away during the hot spells of our Colorado summer season. Experience has taught us that Colorado climate and soils require sturdy plants of selected species. These are supplied by local nurseries and can be bought in March or April or are available at any time of the year as container grown plants. Above all, a number of natives are particularly suited for our gardens.

Flowers on shrubs and trees do not last longer than one or two weeks during the warm season and often are spoiled by heavy rain or hail storms, therefore, we are always in search of colorful foliage and fruit bearing species that will add outstanding color during the later season and long autumn.

Of the natives, we have the silver buffaloberry *(Shepherdia argentea),* a thorny medium growing shrub with crops of glossy red berries and attractive silvery foliage. It should be planted in groups of three or five or more since only the female plants bear fruit, depending on pollenation. Groups of buffaloberry stand out against backgrounds of dark masonry or dark evergreens such as pine or juniper. Chokecherry *(Prunus virginiana demissa)* is a large shrub or small, low-branched tree for heavy screen plantings in gardens and parks. Its red cherries are delicious for preserves. The American plum *(Prunus americana),* a cousin of the European blackthorn *(Prunus sponosa),* is valuable for gardens with arid conditions and for highway plantings. Besides masses of creamy white flowers, it also produces showy fruit. Dwarf mountain elder *(Sambucus pubens)* bears clusters of scarlet fruit. This globe-shaped medium heighth shrub likes moisture but can be planted in rock gardens. Creeping holly grape *(Mahonia repens)* makes a permanent and valuable groundcover plant. Propagation is by root cuttings. Local nurseries should develop these natives for mass production.

Coralberry bushes *(Symphoricarpus vulgaris and chenaulti)* with clusters of pinkish red fruit prove to be excellent dwarfs for shady under growths and for hedges. Plumy seed pods on our native clematis vine *(Clematis columbiana)* make this plant interesting for fence plantings. Snake cactus and a small mammilaria of the southern Colorado mountains are most suitable for arid rock gardens.

Many imported trees and shrubs of thorny character are easily grown in our region and a number of them produce ornamental fruit or berries. To this group belong the flowering apple trees and the hawthorns. Since these valuable large bushes grow to considerable size, they should be

widely spaced to a minimum of 15 feet or wider. The Dolgo, Eleyi, and Wabiska crabapples are the best for bright fruit. Of the hawthorns, the Downy haw, the Cockspur haw, and the Washington haw are the most valuable for poor and arid soils and climates. Medium growing shrubs should include *Rosa Grootendorst* and *Rosa rubifolia* with shiny fruits. These thorny bushes are suitable for plantings on banks and along boundaries where they can form protective thickets.

One of the best ornamental fruit-bearing deciduous trees for Colorado is the mountain ash *(Sorbus aucuparia)* which displays beautiful bright orange clusters of fruit particularly popular with birds and squirrels. Low branched clumps of this tree are best. Only Colorado grown plants or established plants should be used. The trunks should be wrapped for at least one or two years after planting until the bark grows thick enough to resist blight and sunburn. Mountain ash appears to greatest advantage against light masonry. Single trees or widely spaced groups assure well shaped older trees.

Eastern Wahoo *(Euonymus atropurpureus)* and its cousin from Europe *(Euonymus Europaeus)* produce orangish-red winged fruit with yellow centers resembling tiny bishops' caps. These large growing shrubs originally grew along the boundaries of forests and like semi-shady locations. This holds true also for Oregongrape *(Mahonia aquifolia)* one of the few broad-leaved evergreens suitable for Colorado. Since this dwarf shrub will easily reach four to five feet and also likes to spread like the related creeping kind. it should be spaced accordingly. Rows of clump birch or Russianolives may be underplanted with Oregongrape. Foundation plantings and planters will be suitable for groups of mahonia. Yellow flowers and rich blue clusters of berries decorate such groups. Smooth sumac and staghorn sumac *(Rhus glabra* and *Rhus typhina)* grow fruit stands of showy character. The heavy and ornamental foliage of the smooth sumac is of outstanding value among Colorado garden plants. These small trees or large bushes belong to the pioneers of American natives. They like moisture and stand out very well in front of bare masonry, in large planters, and in front of glass walls, forming attractive silhouettes when seen from inside.

Sandcherry *(Prunus pumila)* and Hansen's bushcherry *(Prunus species)* produce yearly crops of fruit valuable for preserves. These low growing bushes may be planted in thickets near fences or boundaries. For planting on steep banks or narrow strips in front of masonry, use such dwarf thorny bushes as green barberry *(Berberis thunbergi),* purple-leaved barberry *(Berberis thunbergi atropurpurea)* with red berries, dwarf quince *(Cydonia japonica maulei)* and the hardy species of firethorn with orange berries. Masses of red and scarlet berries every year cover honeysuckles *(Lonicera)*—particularly the species *korolkowi* variety *zabel* and dwarf honeysuckles. These valuable shrubs should be spaced not less than six feet and four feet for the dwarf kind since all are rapid growers.

One of the best large shrubs with purple foliage and a profusion of palatable fruit is purple leaf plum *(Prunus cistena).* This medium or large, globe-shaped shrub creates useful color contrasts with light masonry or with the silvery foliage of spruce and juniper or Russianolive and buffaloberry. Other large shrubs with showy scarlet fruit in-

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clude highbush cranberry *(Viburnum opulus)*. It should have plenty of space and therefore be planted in groups by itself.

All of the privets bear dark blue or black berries if they are not trimmed too much. These lilac related shrubs can be used for screen planting, undergrowth planting, for hedges, and for borders. They like our climate and regenerate from the root stock if damaged by heavy frost during the winter. The lodense privet bush makes excellent groundcover in shady locations. If spaced widely, it may be underplanted with lilies and other bulbs.

Colorado landscape architects give preference to the study of nature and the testing of suitable plant species according to regional conditions of soil and climate. They use plants in relationship to local site planning and architecture. The division of land for human use and the re-grading of such land surface for best soil conservation and drainage, as well as establishment and conservation of any plant life, has been and will be the main duty of the landscape specialist. This includes artistic design by bringing all elements involved (be they artificial or natural) to units consisting of proportionate masses and color. In this we see our key problem and the answer to our needs for making modern space for living more livable and for creating a good and healthy neighborhood everywhere.

HORTICULTURAL LINGO

GAZEBO—Balcony with windows.
PERGOLA—An arbor or trellis treated architecturally.
CALIPER—An instrument with two legs, usually curved, fastened together with a rivet or a screw or with a spring and pivot. It is used to measure the thickness or diameter of objects or the distance between surfaces.
CLON—A plant variety propagated by vegetative means such as cuttings etc.
ESPALIER—A railing or trellis on which fruit trees or shrubs are trained flat.
PATIO—A courtyard.
HEELING IN—Covering the roots of a plant temporarily with soil.
PLANT PATENT—The exclusive right of an inventor to use and vend a particular plant he has developed.
B AND B—Balled and Burlapped.
WRAP-AROUND WINDOW—A complete glass corner in a house.
MIXT BORDER—Annuals and perennials.
MIRADOR—Enclosed balcony designed to command an extensive outlook.
EXEDRA—An out-of-door seat, planned to bring many persons together —therefore nearly semi-circular and usually having a high solid back.

—M. WALTER PESMAN



Save this handy fall planting guide and fallow it carefully for best results in planting your bulbs this fall. Left to right: Crocus, Grape Hyacinths, Daffodils (Small Cup, Large Cup, and Trumpet. Tulips: Tulipa clausiana, Dasystemon, Fasteriania, Triumph, Parrot, and Darwin.

IT'S BULB PLANTING TIME AGAIN!

PLANT YOUR SPRING GARDEN NOW

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Fall bulb planting time is here again!

But before you rush into buying bulbs, take a stroll around your garden. You may decide to add a clump of daffodils 'round a tree or set off that new picket fence with a bed of bright red tulips. Maybe the side lawn would make an excellent spot for a scattering of yellow, blue or white crocus. Perhaps a bed of bright red or yellow tulips would be offset perfectly with a mass planting of grape hyacinths. Or maybe a formal bed of blue hyacinths near the front walk is what you want. Their delicate fragrance will fill the air with the charming odor of spring when they bloom next April.

You may even want to make a rough sketch just to get an idea of the total plan. It will give you a better chance to match up new plantings with bulbs already in the



Parrot Tulips

ground. As you work out new plantings, here are a few tips from the experts to keep in mind:

If you're planting in front of a low wall, Single Early Tulips, Species and Species Hybrids are best choices rather than the Darwins and Breeders, which, in most parts of the country, grow to heights of 26 to 32 inches. Low-growing varieties are ideal in this kind of sheltered location.

If you're planting tulips, never put them in single file, like soldiers. Blocks or clumps of four or five are ideal because they provide solid, bright color. Don't be too conservative when you plant them. Tulips need a little room to grow, and spacing the bulbs about six inches apart is ideal.

Hyacinths are not only good in formal settings, but are useful for rock gardens. Several differently colored clumps of six or eight of these bulbs will tantalize the eye next spring. Vivid blue hyacinths are the most popular varieties of this fragrant flower; but you can also have them in pink or white. Hyacinths can be combined with Fosteriana or Early tulips in beds or groups. Traditionally, they are ideal edging for a garden walk. They are generally planted in the same manner as tulip bulbs; eight inches deep and six apart.

With Short-cup, Medium Trumpet, Large Trumpet, Poetaz and a host of other daffodils, these favorites of many an American gardener come in almost as many varieties as tulips, and are among the most versatile in the entire garden. They can be planted in beds and borders, blended into rock gardens, used to set off a wall or a tree or any of the blooming shrubs and of course, they can be "naturalized" in a lawn or woodland setting. For naturalizing, they are best planted haphazardly in a rough setting where the lawn is never manicured or in clumps decorating the front of the house.

Daffodils can be left in the ground to multiply year after year. A dozen or so planted now will blossom into fifty or a hundred in just a short



Hyacinths make ideal edging for a garden walk.

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time. All of the daffodils, with the exception of the Short-cups are planted eight inches deep and six apart. The Short-cups look best when they are spaced five inches apart.

Whether you've fallen in love with tulips, hyacinths or daffodils now is the time to stop dreaming about spring flowers and get out and dig. You'll be rewarded with a riot of color and beauty when your garden begins to burst into bloom with the song of the robin.

Daffodils are best in naturalized groups.

HELP HELP! We need to know of more gardens for our Look and Learn Tours. Please send a card to Horticulture House with the name and address of your area, and your friends' or your neighbors' gardens that you think should be shown and at what season. Thank you so much.

—Garden Tour Committee

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TULIPS AT THE BOTANIC GARDENS

By BERTHA DURFEE

The present tulip collection is located on the hill south of the Museum of Natural History. Here 41 varieties of tulips are planted in drifts along the paths through the juniper collection.

About 4,000 bulbs were planted in this area four years ago. They have done very well considering the length of time they have been in place. In fact, due to the extra rainfall during the past two springs, the flowers have been nicer than previous years.

Lily flowered types have caused much comment, are very graceful and free flowering with clear colors.

The varieties of parrot types which we have, with the exception of Blue Parrot, do not seem to be as dependable here.

The following chart is an evaluation of varieties in the Botanic Gardens for a four year period. Those rated "E" were outstanding. However many others presented a good showing.

Variety	Type	Color	Rating	Remarks
Red Emperor	Early	Bright Red	E	Flower about Apr. 20
Ankoro	Dorwin	Deep Yellow	G	
Bartigon	Darwin	Vivid Rosy Red	F	Edges turn white with age
Cloro Butt	Darwin	Salmon-Pink	P	
Cum Laude	Dorwin	Violet Blue	G	
Desire	Darwin	Bright Red	G	
Glorio Dixon	Dorwin	Brilliant Red	F	Flower snapped off with snow
Insurpassable	Dorwin	Lavender	G	
Lo Tulipe Noire	Darwin	Block-moroon	G	
Mohogany	Dorwin	Crimson-moroon	P	Uneven timing and size
Mt. Erebus	Dorwin	Ivory to white	E	Long lasting
Nobel	Darwin	Bright Red	G	
Port Elizabeth	Dorwin	Red	F	
Sunkist	Dorwin	Yellow	G	
Laramie	Breeder	Mohogony-brown	G	Lote
Cheyenne	Breeder	Burnt Orange	G	Lote
Huron	Breeder	Cherry-red	E	5-6 flowers to a stem
Iroquois	Breeder	Dork Rose	G	
Osoge	Breeder	Carmine, light edge	G	
Oswego	Breeder	Oronge Red	E	
Papogo	Breeder	Vermilion	E	
Saginaw	Breeder	Magenta	G	
Winnetou	Breeder	Magenta, bronze edge	F	
Yumo	Breeder	Orange Red	E	
Chappoquo	Breeder	Rose-violet	E	Long lasting
Black Parrot	Porrot	Moroon-black	F	
Blue Parrot	Porrot	Violet-blue	E	Long lasting

Discovery	Porrot	Violet-rose	F	Good 1st yr., did not lost
Sunshine	Parrot	Yellow	P	Short, weok stems
Elmus	Triumph	Red ond White	E	Eorly
Rhinelond	Triumph	Crimson and Yellow	G	Eorly
Symphonio	Lote Double	Rose Red	G	Flowers with bulk of Dorwins
Livingstone	Lote Double	Cherry Red	F	Later than above
Golden Duchess	Lily-flowered	Lemon Yellow	G	Lote
Mildred	Lily-flowered	Light Rose-pink	F	Eorly. Nice color
White Triumphotor	Lily-flowered	White	G	Mid-season
Zoomerschoon	Cottoge	Pink-white	F	
Ivory Gem	Cattage	Ivary	G	
Golden Horvest	Cottage	Leman Yellow	F	2-3 fls. ta o stem
Smiling Queen	Cattage	Rose-pink	G	Bright color

BRING YOUR HOUSE PLANTS INDOORS

HELEN MARSH ZEINER

House plants which are still outdoors should be brought in *now*. If left out much later, the change from outdoor to indoor conditions will be too drastic, and falling leaves will be sure to result. Potted plants which are being used as patio ornaments may be kept out during the day, but they should be brought into the house at night to protect them from the extremes of temperatures between day and night that this time of year brings.

House plants which have been set directly in garden soil should be dug carefully and potted in good potting soil, and the tops should be pruned back to compensate for injury to the roots—an inevitable result of digging the plant. These plants should be watched closely for insect pests which may come into the house on them. After a period of a week or ten days, they should begin to adjust to their new conditions and start growth again. By winter you should have healthy well-shaped plants. Geraniums which have been growing in the beds all summer should not be expected to bloom all winter too, but they will provide good potting plants for next year. It is often easier and better to take cuttings from plants such as geraniums. If started now, you will have good healthy plants of blooming size by spring. Most house plants root readily from cuttings, and it is often more satisfactory to do this than to try to save the large plant. This is particularly true if space is a problem.

If you would like to have a pot of parsley in the kitchen, now is the time to start the seed. Parsley is slow to germinate, so don't be discouraged if the seedlings don't appear as soon as you think they should. With their ferny, lacy leaves, parsley plants are a nice addition to any window garden.

It's hard to think of winter when September is such a beautiful month, but plants adjusted to house conditions now will be lovely when winter comes. Those brought in later will have a greater adjustment to make and less time in which to make it, so that winter will find them far from their prime. Bring your house plants in *now!*

The following article won third prize in our contest "How I Landscaped My Backyard." Mrs. Wilbanks is a member of the Home Garden Club.

HOW I LANDSCAPED MY BACKYARD

MILDRED B. WILBANKS

In the January 1955 issue of Better Homes and Gardens I spied an article entitled "You Can Live Big On A Small Lot." This story of a bare lot being transformed into a thing of beauty was so fascinating I saved it, little realizing it would be the inspiration and guide post for landscaping my own yard.

September first, 1955, found us settled in our new home and engrossed in the task of clearing the weeds and legions of small rocks from the land in preparation for lawn planting. With the watering restrictions for new lawns in force then, there was no time for dawdling. Aching backs were in vogue at our house. We used Merion blue grass seed as recommended in our plan. It truly is a wonderful lawn grass forming a deep and luxurious turf.

We were rewarded for our efforts the following fall by having our lawn named top winner in the September Denver Post-Industrial Federal Savings Lawn of the Month contest. Yes, we still beam when we think of our baby lawn nosing out front in the race, since Better Homes and Gardens stated "from seed, Merion does not begin to really show its true value until the second year."

Our lot faces south and is sixty-eight feet wide by one hundred and twenty-five feet long. The backyard consists of an area almost square in dimension with the rear half lined with borders.

I hope you can picture our backyard from the drawing I have made.

We chose Russianolive and English privet as screening material in the back border, with currents, lilacs and an old fashioned rose added in the side borders. Two apple trees grow here also, one in each corner.

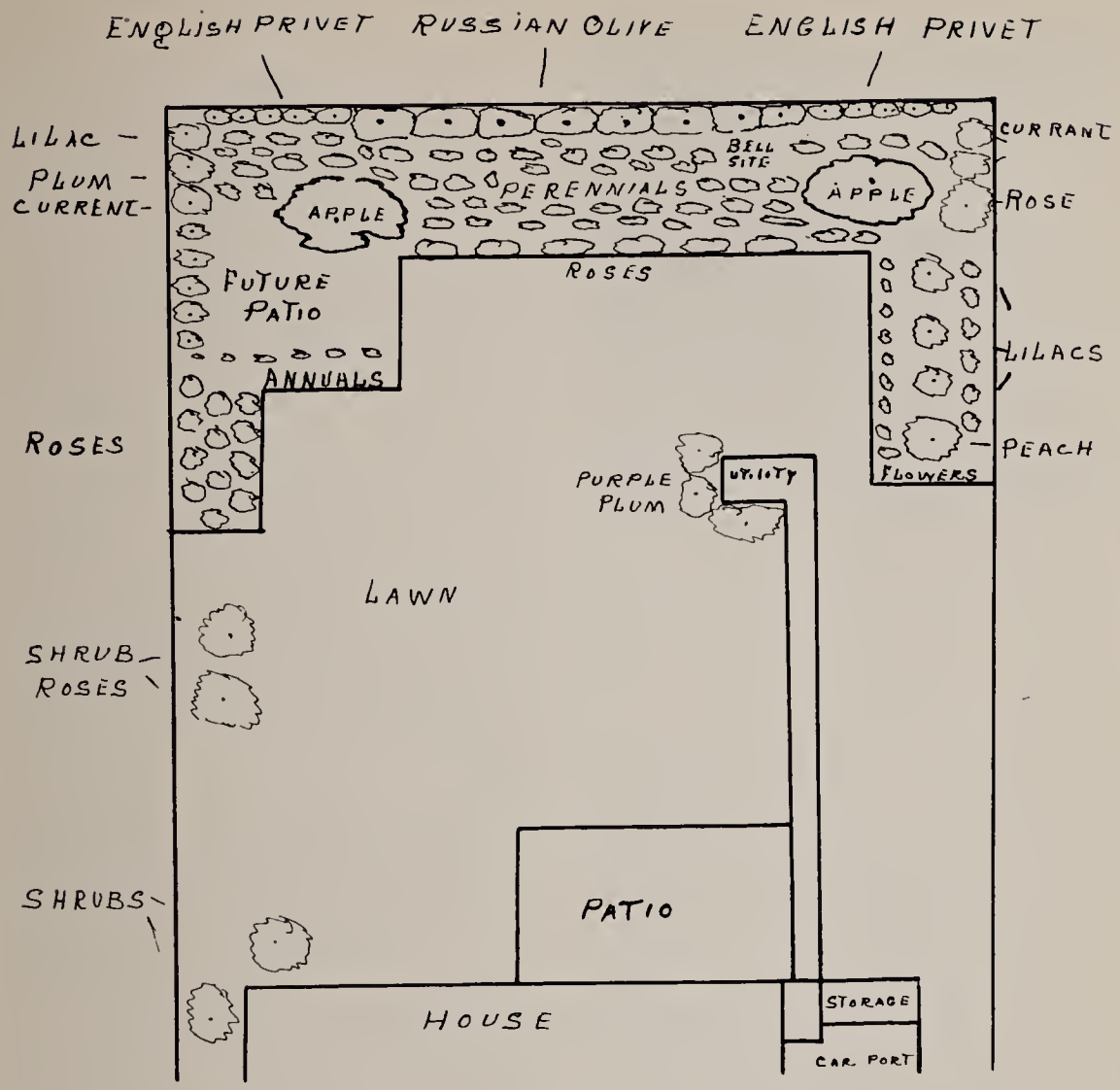
Our flowers consist of roses, mostly floribundas. Perennials are daylilies, iris, chrysanthemums, phlox, blue bells and annuals; future additions will be lythrum, monardas, shasta daisies, dianthus, delphiniums and a host of others.

On the west corner of the house a pyracantha and a *Viburnum carlcephalum* vie for attention. Keeping them company is a Scotch rose, Fruehling's Gold, and a hybrid musk rose, *Belinda,* which is my favorite, blooming profusely in large pink and rose trusses similiar to the perennial phlox.

Friends volunteered in helping my husband, George, build a concrete patio, twelve feet wide by twenty-four feet long, back of the house. Three iron kettles and a stone churn are used as plant containers here. Eventually this patio will be covered.

Our incinerator and trash receptacle presented a rather sorry sight, sticking out like the proverbial sore thumb, until George screened it with a planting of purple leaf plum trees. The foliage contrast of the plum trees and Russianolives is very pleasing.

The part originally intended as a salad garden will eventually be a patio with the apple tree's branches



giving shade. I have already dubbed this "Dirt Dobbers Retreat." It will have flooring of brick laid in sand, a small fountain pool, and walls on the west and north for privacy. Other than these, I can't think of any thing needed except a large comfortable reclining chair where weariness can ebb from a tired body and one can be refreshed by the hum of bees, the fragrance of a rose, the irridescent glow of a dragon fly's wings as it pauses momentarily in flight, or a tiny toad hopping across the patio floor. These are dreams that will become a reality. What more could a plain dirt gardener wish for?

Perhaps to the trained eye our garden lacks polish, but to us its just what the doctor ordered.

If you are tired of a yard that lacks sparkle and beauty, start collecting plans in a scrap book, make a scale model, decide on the things you need and choice of plants grown in close association for foliage values, color, growth, amount of care they require, and cost. All these factors are considered in the well planned landscape. Where ease of upkeep must be considered, perhaps the studied simplicity of a Japanese garden might appeal to you.

I'd like to remind you not to

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forget to put *you* in your garden. Add the personal touch that makes your garden yours alone.

Personal touches in gardens appear in dozens of ways such as the brown stained verse carved on the bench at Horticulture House, or a big fat gourd for notes and a rain proof pad and pencil hanging on the garden gate. You might be delighted with a comfortable high back bench that turns almost as quickly as you can say "Jack Robinson" into a combination bench and table for a picnic lunch.

Quite different are the two ancient rock bird baths hollowed by time and nature in the yard of a garden friend I visited recently. It is quite natural to feel that a tiny bit of the Rockies has been transplanted here as you look at the lovely lichen covered rocks holding the terraces on this hillside home

An old farm bell that once called the harvesters to meals on my Grandmother's ranch will add a personal touch this spring to my own garden. It will be at home mounted on a post in the flower border where it will discreetly call guests to a patio supper, but once a year it will lose its sedateness and will ring out the old and ring in the new with the abandonment of the noisiest merry maker.

It is a consolation to know that money can not buy personal charm and never could. If you are familiar with the things you choose to put in your garden you'll find they will become a real part of your garden with a feeling of belonging. What goes in it should be there because you want it, not because it's the latest thing out.

Don't hesitate about adding personal touches. Give your garden three ingredients—beauty, privacy, and self expression and it will whisper, sing, and shout nice things about you!

HEDGES . . . are not, however, generally speaking, very suitable for the park, for however neatly they may be cut and dressed, it is needful, when they form the boundaries of clumps or plantations, to keep the trees trimmed back, in order to prevent them from injuring the hedges, and so they impart a more formal and constrained outline to growing wood than almost any other species of fence does. Hedges may be planted with good effect on the inside of the boundary walls of the park to clothe them when they are not screened by plantations. From *Landscape Gardening or Parks and Pleasure Grounds* by Charles Smith, 1856.

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A PLACE TO SIT

By EDGAR A. JOHNSON

Parks Planning Department



Photos by Pat
from this summer's Garden Tours

A friend of mine whom I visited the other day is justly proud of his lovely garden. His roses were beautiful with no trace of disease or insects. A profusion of other flowers gave splashes of bright color throughout the garden. The lawn, a lovely green carpet, served as a perfect foreground for them, and a panoramic view of the mountains from Pike's Peak to Long's Peak formed the background.

My friend's pride in this garden is evident for he conducts each visitor on a thorough tour pointing out special flowers and places from which the mountain view is particularly fine. After our tour, a cool breeze refreshed us as we discussed the beauty all around us and, although we were hesitant to leave, after a relatively short visit of perhaps only ten or fifteen minutes we did grow tired of standing so our host invited us in to the house to sit down.

Inside, in spite of the fact that a fan helped noisily stir the air, the house was stuffy, and in the vases around the room the flowers seemed wilted and faded compared to the masses of fresh bloom in the yard. Our conversation soon turned again to the garden, and I commented to our host that he must get a great deal of pleasure from it.

Surprisingly, he replied to the contrary. He said it seemed to him that all he did was work on the garden, that he was beginning to get tired of it, and that sometimes he thought about getting rid of it.

Does this sound like anyone you know? Do you sometimes feel the same way about your own garden? What did this garden lack that kept us from staying longer in it and why did our host fail to gain enjoyment from it?

One simple thing was missing—a place to sit! Providing a place to sit in a garden seems so logical and obvious that it is hard to believe that a great many gardens in Denver have none. Without such resting places, a garden loses its value as an outdoor living room or as a place to entertain. It becomes, instead, as in the case of my friend, just a place to work.

A resting place should be an essential part of the design of any garden. Perhaps the simplest thing to do is to buy lawn furniture and scatter it around. Or with a little more effort and planning, a pleasant resting place may be made an integral part of the picture.







Generally speaking, garden furniture should be grouped on some sort of paved area, because, first, the grouping appears to be more appropriately tied together on a hard surfaced area, and second, because if it is well-used it will certainly damage the grass under and around it.

There is all manner of surfacing material. The more common materials are concrete (with and without divider strips of wood or brick), flagstone (with and without cemented joints), brick (new or used), wood blocks or planks, gravel, asphalt paving, etc.

More important than the type of paving is the location of this paved area or patio. Usually the best spot is near or adjacent to the house itself. This location is handier and minimizes the distance that food or refreshment must be carried when the patio is being used as a place to entertain guests. If the area is to be roofed, an extension of the house roof is usually less expensive and less difficult to construct than a separate structure.

Although roofing the sitting area is not absolutely necessary, it is certainly desirable. A roof will not only protect the area from sun and



rain, but it will also allow a greater variety of furniture which will not have to be entirely waterproof. And by all means try to have a direct connection between the patio and the house for protection from rain while coming and going.

A separate garden house, whether covered or merely shaded, is also an excellent addition. Looking across to an enticing patio greatly adds to the beauty of a yard. There is no need to confine yourself to a single sitting area. There can be a patio close to the house for convenience and for most frequent use. Across the garden, another shaded place can be quite inviting. Or one patio might be shaded or roofed for all-weather use, while the other might be a sunny patio for sun-bathing or for use in cooler weather.

In our climate a sunny patio, protected from the wind, extends its use into early spring or late fall and an open fireplace gives warmth on our cool nights.

So far, we have only mentioned roofed areas for shade, but this is by no means the only way of shading a patio. The use of trees is probably the most common method and if you already have some, these will greatly influence the location of your sitting areas. In this case, you should concentrate on using the noon-day shade, for in Colorado, early morning and late afternoon are usually cool enough so that sun is not objectionable and may even be welcome.

If the trees are not in the correct location, or if you have a new home without any, you may have to wait for such shade, but by all means get them planted so that the trees will be growing to usable size. In the meantime, don't just huddle in the house, get out and build a shade structure.

This can be a lath house, a framework to hold fast growing vines, or a roofed structure. The cost of a framework for vines will, of course, be the lowest and has the same advantage as deciduous trees that loose their leaves in winter, allowing the sun to warm the sitting area. Personally, my favorite vine for this is the common garden grape. This vine not only gives fruit, but it can be trimmed back to a single neat





stem in the winter time. Many other woody vines can be pruned the same way. Another possibility is an annual herbaceous vine that is removed completely during cold seasons.

Our discussion of sitting areas seems to have concentrated on patios and similar areas where portable furniture is grouped as in a living room. Now let's talk a bit about those that are built-in.

If you have a change in grade from one side of your garden to the other, you may have a troublesome slope. If so, don't fight it—make it an asset. A low wall at seat height capped with broad stones or a wooden slab makes an excellent casual bench. Even if you don't have such a slope, the same thing can be done by constructing raised flower beds, or planting boxes that are at seat height. These walls or raised beds can be made with many different materials. Masonry is the most frequently used material, but redwood is also coming into use more and more.

Benches placed under trees, along garden paths, or at the far end of a garden entice strollers. These can be purchased, or can be a good do-it-yourself winter project. An old fashioned circular bench around a tree is a usable and attractive conversation piece.

Even steps, if they are broad and gentle, can serve as places to sit, particularly when you have many guests.

Garden seats need not be elaborate but they should be a definite part of the landscape. They will not only make an outdoor area more useful to you, but a garden with plenty of chairs and benches is much more attractive and inviting than just a garden of flowers.

"BANE" THAT A "WORT?"

In a previous number of "The Green Thumb" we found out that "worts" are nothing to be afraid of, but are simply another name for plants or herbs of any kind.

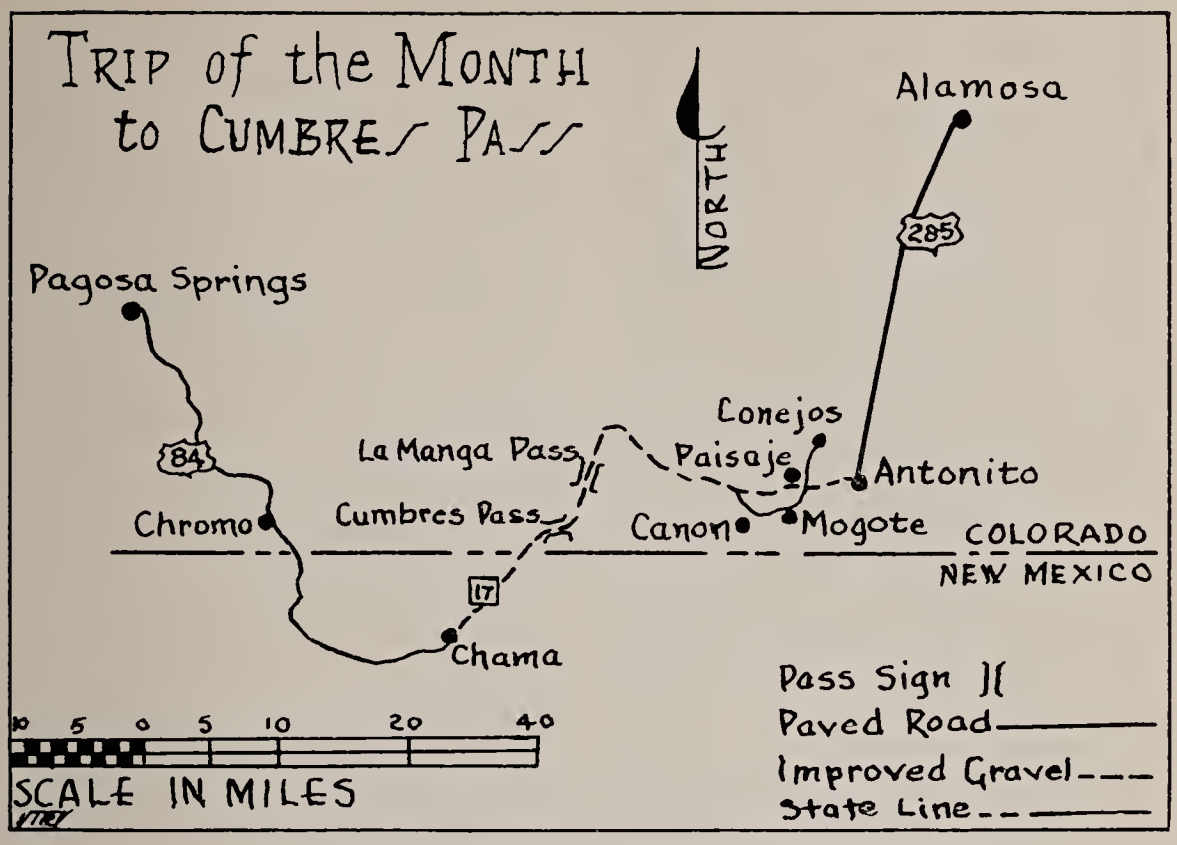
"Banes" are in less good standing. The meaning is that of destruction or murder in Anglo Saxon. In old Gothic *banja* means a stroke or a wound. "Bane" then is any cause of ruin or of lasting injury. Its synonym is poison, ruin, destruction, injury, pest, and the verb *bane* means to kill.

You can make your own deduction as to the meaning of "henbane", "dogbane", and "baneberry". The latter is one of the very few native plants that really has poisonous berries *(Actaea arguta).* It grows in the mountains and has either white or red poisonous berries.

"Bane that a wort"? Yes, there *is* a "banewort", used for either belladonna or for a weedy kind of buttercup *(Rananculus flammulus,* growing wild in Europe and England).—M.W.P.

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By MARIAN TALMADGE AND IRIS GILMORE

Get out your watercolors and oil paints. Load your camera with color film. It's aspen time in Colorado. If there is ever a season when our state is truly "colorful" it's in the autumn when the aspen leaves turn to spun gold.

Come with us to Antonito at the southernmost tip of the fertile San Luis Valley. Here the last of the narrow gauge railroads, belonging to the Denver & Rio Grande, starts it tortuous climb over Cumbres Pass to Durango some 175 miles west on the other side of the rugged San Juan mountains.

We left Antonito on State 17. Just off the highway are several Spanish-American hamlets — Paisaje, Mogote (Los Mogatos) and Canon — which retain much of the atmosphere of the old southwest. Their drab adobe houses are dressed up with bright strings of red chili peppers hanging from the roofs, and the doors and windows are painted with the ubiquitous Virgin's blue. Small windowless churches, called "moradas," belong to the Penitente brothers, a secret sect, and are used during Passion Week and Easter for their strange rites. No visitors are allowed.

At Conejos, county seat, is the Roman Catholic Church of Our Lady of Guadalupe, first Christian church built in Colorado in 1856. The adobe church has been damaged several times by fire, but has always been restored.

Back on the highway we followed the Conejos river, a cool, sparkling stream, shallow enough to wade, and not too wide. Tiny yellow sunspots and purple asters grew profusely. Red rose haws glittered in hedge rows along the split rail fences. Willows and narrow leaf

cottonwoods marched along the creek banks.

From time to time we saw rock fences, reminiscent of New England, and log corrals on every ranch. The ranch houses are mostly adobe, often peeling, with red or green roofs, some of tin, and an occasional dark tar-paper one. Bright pink and red geraniums filled the windows with gay color. Many of these ranches have belonged to the same Spanish-American families for generations.

We saw countless magpies and red-winged blackbirds and once in awhile we heard blue jays raucously scolding in the woods. Rabbits often ran across the road, and several porcupines had met untimely ends on the highway.

Suddenly we were stopped dead in our tracks by three herds of sheep moving down from high country pastures — some to go to market and others to the more protected valley feeding grounds for the winter.

Deeply wrinkled, leather-skinned shepherds rode expertly by and grinned at us, their teeth gleaming in their friendly dark faces. They waved gaily and shouted, "Gracias! Gracias!" as we finally moved slowly against the tide of sheep.

"Baas," filled the air and a great dust cloud hovered over us and made us cough and sneeze. Sheep bells tinkled musically and tiny hooves clicked against the stones.

A few miles farther we came to a sharp left turn and leaving the river abruptly we climbed up toward La Manga pass. Green and blue spruce, ponderosa pine and quaking aspen took over the rocky hillsides. Over the pass we dropped down Grouse Creek and then quickly started up rugged Cumbres Pass.

This beautiful narrow winding road, well maintained and graveled, follows the old Archuleta Toll Road named for a Spanish explorer of the 17th century. Fortunately we could not drive very fast and it would have been a shame to miss the beautiful vistas at every switchback.

No matter which way we turned there was a feast for the eyes — golden aspen quivering in the sunlight like tongues of yellow flame against the dark spruce. Whole hillsides like oriental rugs spread before us with their multitude of colors. It was a place to linger, to pause and dream, to soak up sunshine and peace and rest. It was a far cry from the trials of everyday living.

At the top of Cumbres Pass we met the tracks of the narrow gauge which had followed another valley. A wye stood below us protected by a drab wooden snowshed to remind us that the snows and drifts are very treacherous up here during the winter. The auto road is closed and only by great effort with snowplows do they keep the railroad open.

Starting down the other side of the pass we saw more beauty—all shades and colors of red, orange, yellow and green in the trees and bushes. The only blue was in the bright sky and on several mountain blue birds we were lucky enough to see. The purple mountain peaks in the distance picked up the color from the asters nodding along the roadside on the dry, sandy slopes. There was a soft haze muting the mountains where snow had already fallen on the high peaks. Occasional white cloud puffs drifted by, intent on some heavenly rendezvous.

We were fortunate to meet a narrow gauge train puffing its way up the pass, its tiny engine working mightily and assisted by another engine pushing vigorously on the rear behind the miniature caboose. The trainmen waved friendly greetings.

Below us a column of white smoke announced the presence of a sawmill. It would have frightened us a hundred years ago because that column might have meant a smoke signal sent out by a Ute hunting party or an Apache war party. This is old Indian country and the Indians knew this pass well as did the Spaniards and later the mountain men in the early days.

A few miles away Apache Lake on top of the Continental Divide spills its water to both the Pacific and Atlantic oceans. Because of this, legend says, the Apaches consider the lake a holy place and even today some of the old men come for secret rites.

We crossed the Chama river and abruptly were in the village of Chama. It's a sleepy little town like something out of a TV western with its false front stores. The old railroad station and yards with their grey buildings and black coal chutes are on another level down close to the river.

At the south edge of town three sawmills filled the air with harsh sounds. The smell of fresh cut pine was most pleasant. Burning sawdust from queer tepee-shaped buildings sent white smoke plumes straight up. We took reluctant leave of southbound US 84 which follows the Chama river down to colorful Taos and Santa Fe.

Turning west we followed US 85 for about ten miles across the Continental Divide. There was some change in the flora. The yellow blooms of rabbit brush followed the highway. Junipers and brilliant red scrub oak colored the hillsides, and the still blooming sage perfumed the air.

The road angles northwest across the New Mexico-Colorado border. We recalled that this border had been in dispute for many years. Mountain mahogany, sagebrush, and cliff roses are making a slow comeback in the draws where overgrazing brought about shocking erosion. Deep arroyos testified to the abuse.

Now into Pagosa Springs where we stopped overnight. Here are medicinal springs which even the Utes and Navajos valued so much they fought over them. Today, besides being used for a spa, the 153 degree water is used to heat the town's schools, courthouse and several business buildings.

It was a good place to end a wonderful, satisfying day.

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GARDEN BRIEFS

By MRS. JOHN SCOTT, *Federation of Garden Clubs*

One of the Colorado Federation of Garden Clubs, Inc. junior groups calls itself the "Grow and Show Garden Club." While seniors emphasize artistic arrangements, in reality, growing is the prelude to showing, or to the horticultural division of floral displays known as flower shows. The finesse with which this tribute to the Goddess of Green Growth may be fashioned (via designs, too) is as vigorous or velvety as the themes themselves.

For instance, some themes stress seasonal sequence: *Where the Columbines Grow, The Round-up of the Flowers,* or *Magic of Spring;* or the musical mood: *Melody of Flowers, Garden Hit Parade,* or *Le Danse des Fleurs;* or perhaps, civic commemorations: *Flower Fun in Littleton, The Flower Fair, Hi Ho, Come to the Fair;* or *The Story of the Pikes Peak Region.* Then, timely topics: *To the Moon with Flowers, Beauty out of this World,* or *TV Guide to Floral Stars* and *Beauty Blooms in Every Room.*

The above theme aptly suggests a home show, sometimes known as "the placement," or house-to-house show. One home is enough, although several residences may be used. However, in the case of one home, each room, with no fewer than four entries, may be considered a class. Horticulture may be shown in a garage, patio, terrace, porch, recreation room, etc. The home show can be quite exclusive in many ways. It's an excellent way, too. for a small club to stage something superior.

Still soloing, but this time with one-of-a-kind flowers, we come to the chrysanthemum, rose or gladiolus show. This type, with its many varieties, is usually put on by a society, such as the American Dahlia or American Delphinium Society. It could be seasonal, educational, specialized, or all three. *Spring Rainbow,* the theme for an iris show this year, set the stage for the schedule, scope, styling and story.

Flowers Tell a Story, may be a contradiction to *Daisies Don't Tell,* but it's an interesting theme and was used by the Johnstown Home and Garden Club and the Forget-Me-Not Garden Club. Two or more clubs often plan a show together, especially when it's for a civic or community celebration.

Celebrations often "point-up" patriotism with such themes as *The American Dream,* or *Parade of Flowers.* Sometimes the designs (formerly referred to as arrangements or compositions, and now as passe as the vine-covered "bath" at the end of the path) suggested by the themes are a bit beyond the floral designer's skill. Yet, without an appropriate theme, the imagination is stifled and floral art suffers.

Floral artistry is not a new medium, as the theme, *Hands of Time* suggests. It just hasn't reached its peak of perfection, either privately or publicly.

People, like felines, are curious. Provocative themes such as *Nodding Blossoms and their Friends, Beyond the Garden Wall,* or *Flowers and Feathers* might attract the public to explore further and attend the Show. Gardeners, knowing the importance of birds in their program, will probably guess that such a theme is featuring feathered friends.

Even if a theme seems simple or

easy like *Flowers Everywhere, Life in the Suburbs, Mountain Treasures, Beauty of the Earth,* or *Potpourri,* the viewers may be in for a wonderful surprise due to the ingenuity of the show committees. A class captioned, "The Naked and the Dead," under the theme *Potpurri,* put people in the cat class—curious.

While a theme or motif should catch the eye and incite the imagination, it must do much more. Not only will the senior and junior horticulture and design divisions be guided, or curtailed by it, but other garden club objectives, which include: Conservation of our National Resources, Control of Garden Enemies, Landscape Design, Garden Centers, Birds, Identification of Our Native Plants on State Protected Lists, Garden Therapy, Commercial Displays, etc. will be guided by it. This is quite a stretch, but one requisite of a good theme is elasticity.

Originality is another, and keeps schedule committees awake nights. Small wonder gardeners collect schedules — topped by themes, of course. For seldom is so much expected or represented by so few words.

Few Flower Committees explain their theme, but the Grand Junction and Desert Vista Garden Clubs printed the purpose under theirs, *The American Dream!* ". . . to demonstrate the educational value of horticulture, to encourage the love of gardening and art of flower arranging, and to make the public conscious of the great necessity of conserving our natural resources and preserving our American Way of Life."

Soil Moisture Indicator is what you can buy now if you are anxious to find out how much water your trees need at any given time, and at what depth. It will cost you around twenty-five dollars for the larger size, and is called the Lark-Soil Moisture Tensiometer. You insert the tensiometer in the soil in the root zone, and a simple reading gives you the desired information.

LETTERS TO THE EDITOR

I have just finished reading every word in my latest (August) Green Thumb and I thought it especially good reading this time. Every article was *wonderful.* I hope you'll continue the "Backyard Development" articles. They are splendid.

—Mrs. Charles A. Shoe,
Longmont, Colo.

Many thanks to Wes Woodward, first prize winner of "How I Landscaped My Backyard," for his interest in the Association to the extent of turning over his $25 prize money for a five year membership.

Mr. Woodward is a member of the engineering firm of Williams and Woodward and Associates. He is on the Board of Managers of the Colorado Society of Engineers and on the editorial staff of the Engineers Bulletin. He is also a former newspaper man, having been editor of the Estes Park Trail in 1938. We hope Mr. Woodward will find time to write many more article for The Green Thumb.

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MR. CONY, HARVESTER

By MARJORIE L. SHEPHERD

Do you like to hop from boulder to boulder on the rock piles above timberline? Have you tried to find the source of the high-pitched squeak you hear? If you will sit down and be very quiet, the owner of the voice may appear briefly so you can see him, if your eyes are sharp, for he is the color of the rocks. Beneath these rocks he makes his home and stores his food, and if the time of year is late August, he may pose on the edge of a rock with "hay" in his mouth.

This is Mr. Cony. He is a small fur-bearing animal who is a cousin of the rabbits, even though he may look more like a rat to you. In the late summer he gathers his harvest and stores it for winter. His favorites are bistort (a buckwheat) and three varieties of clover.

If, when you see him, he has his mouth full of greenery, he may be so intent on the business at hand that you will get a good look at him. When he has whisked away once more, look among the rocks for a protected niche where the sun warms it during the day and you may find some of his stores laid to dry just as farmers cure hay before storing it.

Not too many summers ago, I found one such place. There were neat rows of nothing but clover which had taken such a small animal many hours of labor to gather and lay out to dry.

You may be interested now, to go and look at the meadow which is his source of supply. The bistort will be about six to eight inches tall and the once white flower head has ripened. Perhaps the early frosts of the high area may even have turned it reddish. One of the clovers is very small, but if you look you will find the three parted leaf which you associate with clover and you may even be able to tell that there are other varieties from the now brown flower heads which differ in size.

Of course, if you really want to see the bistort and clovers in bloom, go back next year, early in the summer, and enjoy seeing them in bloom amid the other hardy natives who can live here along with Mr. Cony.

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PROGRESS IN REGIONAL RECREATION

At a meeting held on August 5th the recreation advisory committee for regional parks took steps to implement a regional recreation program.

The Regional Planning Commission staff with the help of this committee has prepared an excellent Master Plan Report on *Recreation in the Denver Region*. This report is exceptionally well presented. It states the general need for parks and recreational land standards, points out the existing recreational facilities, and outlines a proposed plan for regional recreation. The acceptance of this plan by the Regional Planning Commission is only the first step in putting this recreation report into action.

Mr. John Shearn of the Regional Planning staff presented a proposal for a citizens committee to "sell" the regional plan to the administrative officials, and the public and to seek legislation to enable the program to be carried out.

A suggested name for this committee was the Regional Parks Association. The Association would become the official agency working for the development of this regional recreation program. One of the goals would probably be the creation of a metropolitan park district or metropolitan authority which would be publicly supported by a small mill levy. So financed, the authority would have control over the acquisition, development, and operation of the park areas on a regional level as outlined in the planning commission report. Precedence for this type of metropolitan agency has been established in Boston, Cleveland, Detroit, and other areas.

The Regional Parks Association will be a well balanced committee with one representative from each of the following:

State Parks and Recreation Board
Colorado Forestry and Horticulture Association
Rocky Mountain Study Council
Izaak Walton League
Denver Area Welfare Council
League of Women Voters

In addition to the above, the Association would include one member from each of the participating counties.

It is important to note that the Association will be made up of interested citizens rather than people who are professionally involved in any part of the recreation program. Attorneys, financial advisors, and parks and recreation specialists will be called upon for their services when the need arises.

This proposed Association received the endorsement of the advisory

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committee. Members for the new group will be selected by the organizations involved and an organizational meeting will be called as soon as possible.

Copies of the booklet *Recreation in the Denver Region* are available for inspection by Colorado Forestry and Horticulture Association members at Horticulture House. Everyone should read this fine report and lend their assistance to the Regional Park Association when it is organized.

With sufficient public interest and support, this Association can be expected to assist in the formation of the required metropolitan authority and in securing the necessary funds to put the regional recreation program into action. —R.L.W.

INVITATION

The rush is on again the Fall
we hear the miner's cry:
"There's gold in them thar hills, come all,
mind you; no alibi!"

This is the only time its true
that money grows on trees
As aspen flaunt their golden coins
with every vagrant breeze.

Dame Nature's annual treasure hoard;
all yours for just your time!
All yours the golden harpsichord
of song in tuneful rhyme.

All yours the wondrous interblend
of colors, rich and pure;
An artists' longed for dividend,
Dame Nature's portraiture.

You'll lift your eyes to them thar hills
once crowned in snowy white,
You'll know the charm of rippling rills
and treasure their delight.

You'll marvel at the castled rock
viewed as a bas-relief,
And long to gather dark red dock
for decorative sheaf.

The grazing herds in meadows lend
contentment to the scene,
Of rustic beauty there's no end,
come crown the Harvest Queen.

Yes, miner, yes, we'll heed your cry,
we'll rush to them thar hills,
We've need of treasure to enthrall
our humble domiciles.

—LILLIE GAYLE FLEISCHER

Report of the Annual Meeting of the American Society of Landscape Architects

By JULIA H. ANDREWS,
Rocky Mountain Association of Landscape Architects

This year brought another first to the history of landscape architecture in the United States. Meeting immediately after the American Society, and also in Washington, D.C., was the International Federation of Landscape Architects (I.F.L.A.). In spite of the obstacles of distance and of unfavorable currency restrictions, I.F.L.A. came to our shores. Average attendance at the biennial congress in Europe is about three hundred. It was judged a success when sixty overseas visitors arrived, representing a complete circle around the globe.

During the congress, each delegation gave a paper. The Total Landscape In Israel—how it must be and is being changed so that it will become a land fit for human habitation—was discussed by Zvi Miller. Illustrated with slides, it showed the progress to date in plans for reforestation, at the rate of five million trees per year, eroded hillsides, making the desert productive, building cities, harbors and plans for a complete transportation system.

Mr. Jeffrey Jellicoe of Great Britain discussed the quality of light and how it should affect design and use of materials in different locales. He took his examples from ancient Greek, Roman, and Persian civilizations.

Mr. Tono, returning after thirty-five years, criticized the California style of garden design being called "Japanese type or style" in his paper on Japanese Gardens in the Modern World. Some of the elements of design associated with California gardens were originally found in Japanese gardens, but they have been manipulated into a pattern that is unique to California. As elements of design, they now have no relationship to the context of Japanese gardens. Mr. Tono felt it was wrong to copy a design of another culture even if the idea was rather exciting. A different design that catches the public fancy is copied and copied until it becomes a worn out fad. The lead that Japan has enjoyed in creating landscape designs, so highly refined that the sensitivity of the viewers and users is sharpened, is slipping away. Mr. Tono felt landscape architects in Japan, with the exception of a few outstanding ones, have become stimied with fads and are not creating a Japanese modern in context with the culture.

Also brought to the attention of the delegates is the fact that the United States is running out of land —not in some other generation, but in our own lifetime. Statistics were used to prove that if present trends and ways are not changed, in twenty years there will not be enough agricultural land to feed our population. Each new highway, missile base, or military reservation takes a great bite out of our existing agricultural acreage. The number of acres to be devoured by the interstate highway system is astronomical. We have been careless, but we cannot continue to be careless and shortsighted without paying dearly for the consequences.

So varied were the subjects covered by the lectures at the congress that each one presented just one

facet of interest to the profession. All together they gave a good picture of the problems encountered when imposing human uses upon the landscape.

The total landscape is of vital concern to us. Is human life going to imprint it and scar it or is human life going to blend into it and be influenced by its features—its mountains and plains, its sand and water, its trees and grasses. In this technical era, we humans sorely need a total landscape where we can recreate. ". . . Landscape that is worthy of the name is recreational." That is what our profession is about —bringing the whole surface of the land together into a complete, satisfying pattern which will give pleasure, and therefore recreation, to all who see it and live in it.

Miss Silvia Crowe of Great Britain continued in this strain to say: "The separating out of the landscape into certain areas where we enjoy ourselves, and into others where we work with no joy, is a schizophrenic state. I think our Swiss and Scandinavian friends have come nearest to the ideal of making all landscapes recreational. In those countries you can see the wholeness of landscape flowing into one rhythmic pattern which contains within itself all the needs of life."

We here in Denver must be concerned with what is happening beyond our garden fences.

DUTCHMAN'S PIPE VINE

When we moved into the house where we've lived for 38 years, there was a Dutchman's Pipe Vine growing at each end of the front porch. The folks who formerly lived in the house came to call and offered us $25 for the vines. We resisted the temptation and have always been glad that we kept them.

One grows on the north where the roots get no sunshine, and the other is partly shaded by a maple tree. The vines make a perfect cover for the porch ends, the large heart-shaped leaves usually measuring 8″x8″. I've measured an occasional leaf 12″x12″.

The insignificant little yellowish brown flowers are about 1½″ long and shaped like a Dutchman's pipe, so the variety has long been known as *Aristolochia sipho.* The garden dictionary, however, says the correct name is *A. durior* and describes it as "a tall, high climbing vine of eastern North America, widely cultivated for its fine foliage."

So when you have an unsightly object that needs covering with considerable speed, or a porch end you wish to screen, try planting a Dutchman's Pipe vine. It never needs spraying for in these many years we have never discovered any disease or any plant pests that bother this vine with its beautiful deep green foliage. Our Denver weather has ranged from 100° above down to 23° below zero during the years these vines have been growing here—so they are HARDY.

—R. E. EWALT

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WHO IS JACK FROST?

By ROBERT L. WOERNER

As the cool nights of autumn approach, we look forward to another display of fall color. Most of us can remember from the myths of our childhood the legend of Jack Frost painting the leaves from a palette of orange, red, and yellow. Although frosty nights are conducive to leaf colorations, the process is dependent upon simple changes within the leaves. Actually, our friend "Jack Frost" may greatly decrease the fall color display, should he arrive far ahead of schedule.

To understand fall color we must learn a few simple facts about plant pigmentation. With the advent of gum, toothpaste, and air-fresheners containing chlorophyll, we have all learned that it is green, and most of us know that it is the green coloring agent in all of the plants which produce their own food. Two other pigments produce the yellow and yellow-orange colors in plants—the xanthophylls and the carotenes. These substances are present in most plant leaves, but they are masked by the chlorophyll. A fourth pigment, anthocyanin, may or may not be present in a plant leaf. Its presence depends upon the concentration of sugar within the tissue.

During the summer the leaf is busy manufacturing proteins and starches for the plant. As cooler weather approaches, a process is begun by which the food and the chlorophyll are evacuated from the leaf. The starches in the leaf are readily converted to sugar at lower temperatures, but the rate at which the sugar may leave the leaf is slowed down considerably. With this build-up of sugar, there is a corresponding increase in the amount of antocyanins, the red pigments, in those plants which produce them (sugar maple, dogwood, sumach, etc.), and the leaf turns red. The sugars and other foods are gradually removed from the leaf and the chlorophyll is broken down and evacuated. With the disappearance of the anthocyanins and the chlorophyll, the yellow pigments are unmasked giving a period of yellow foliage. These colors are also broken down and the leaf cells die and are oxidized to a brown color. In most of our deciduous plants in Colorado, there is little anthocyanin, so the normal process is a change from green to yellow as the chlorophyll is broken down.

Under normal conditions the plant has an opportunity to convert starch to sugar within the leaf as days become cooler. This sugar content

Last spring many of our friends asked us to help them with the planning of their gardens. During the planting rush we could not take time from the business at the shop to help. We will have some time between now and the first of February to get out and work with you on your problems. Call us for appointments. Planning and consultation is done on an hourly basis, but we hope that you will also want some of our rare and unusual plants next spring.

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seems to increase the resistance of the leaf tissue to hard frosts. Should a severe frost arrive early before any resistance has been built up, the leaf cells die and turn brown, with a resulting loss of fall color.

The brilliance of an autumn display may be dependent upon a dry "Indian Summer" with bright days and cool nights. Professor W. H. Pearsall[1] has observed that in Britain a frosty autumn with bright days between frosts produces better colors, particularly in the reds, than a wet overcast one. He attributes the less colorful wet season to the rapid loss of substances such as potassium from the leaf. These substances normally retard the drying out of the leaf. With their removal, the leaf cells are quickly dessicated and killed before color changes can occur.

Such are the mysteries of autumn coloration. Here's hoping we have a gradual approach to cold weather with many clear days and frosty nights, so that we may enjoy a fine display of fall hues in the Rocky Mountain region.

[1] *Autumn Colours*, Endeavour Magazine, October 1949.

PARKWAY MUSINGS

They've tamed the country for the sake of men,
And what we pass is patterned for our lives,
Bisected, leveled, cleared and drained, and then
Seeded to bring the green back to the earth
In strict control. But where now is the food
For outrageous fancy? Dark and dangerous wood,
Small Everest of rock, swamp-jungle pond,
The daisy meadow that can hide a child
Flattened to ground, tickled by weed and frond?
The grass is cut, the trees have long since gone,
Bulldozed to creaking death. The mounds are razed,
The only forest is of aerials,
Twigs brushed by the same tune a thousand times
But indifferent to wind. For miles no wild,
Strange, sudden life catches the human throat,
Swells the mind outward. Oh, there's light and air,
And children play and fathers mow the lawn
And mothers hang out washing, and you can find
The age-old acts of families. But where
Is the nourishment? That natural birth
Of dreams that flower in the untampered earth?

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Seasonal Suggestions

September, or Indian Summer, as it is aptly named, is a pleasant and beautiful time in the high plains country—ever changing as nature reverses her spring processes to prepare for the cold onslaught of winter. As the shorter days and cooler nights become quite noticeable, the color scheme in the garden changes completely from pinks, reds, and whites to shades of yellow, maroon, and gold. New character comes to many of the shrubs as their shiny fruits mature. In the mountains the magnificent evergreens bow to the grandeur of golden quaking aspen. Yes, Indian Summer is a pleasant time of year but not a lazy one for the good gardener.

My first suggestion would be for you to take a long and good look at the passing season. Now, if ever, is the time to sit down and start a garden note book or diary. We have just come through one of our toughest years of insect and disease problems and have had one of the best growing years in the past twenty years. A record of the many pests encountered or the spectacular growth of a particular plant could be very valuable for future reference. Memories are short lived. Take a few minutes now to jot these things down on paper, then next summer you won't have to debate whether to use 2, 4-D or DDT.

Along this same line, if the September changes in your garden are dull and uninteresting, take a little time to drive around the city in which you live. Look at other people's gardens and at the parks to see what they have done to achieve good autumn color.

Now is the time to start a compost pile. As this season's annuals fade, turn them into rich humus instead of carting them off to the dump. The October-November issue will tell how to make compost.

Plan for and plant your spring bulbs now. Most of the nurseries and seed stores receive their supplies of bulbs about the middle of the month. If you want the best selection possible, shop early. The most popular varieties sell out in a hurry.

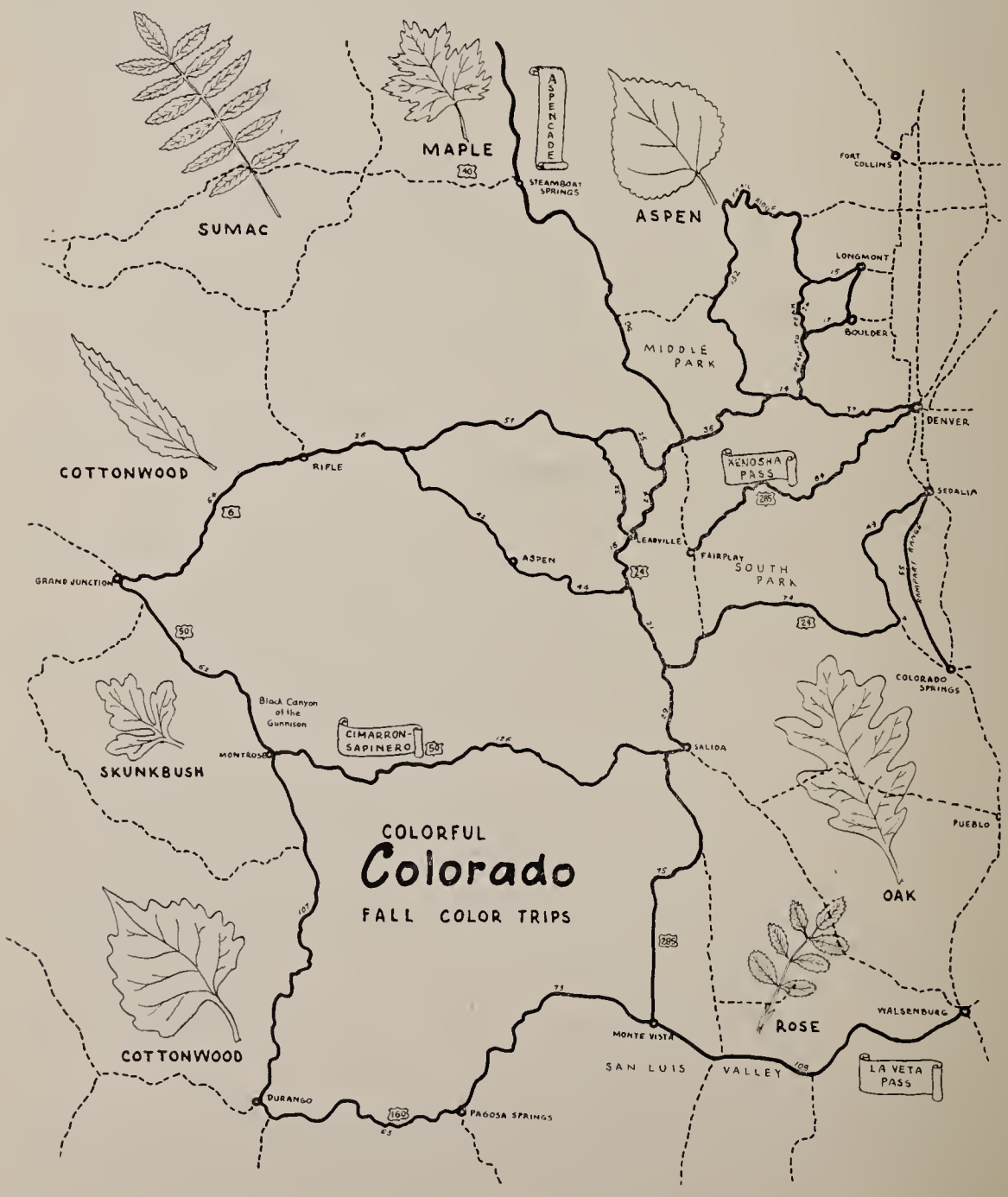
Our insect problems aren't over. Willow aphis and boxelder bugs become a nuisance. Aphis, of course, can be controlled with malathion while the boxelder bug is more difficult to control. Good results have been reported with dieldrin. Be sure to check your evergreens this month. More damage is done at this time by aphis and spider mites than at any other time. Again, if they are present, malathion will control them. Mildew is also a serious problem at this time of year. Spraying with sulphur or karathane is advised.

Stop fertilizing. Fertilizers put on now will produce succulent growth that is easily winter killed. Water sparingly to give your plants a chance to harden up for the coming winter season.

Particular attention should be given to your trees and shrubs. As mentioned earlier, they have put on a tremendous amount of growth this past season. Many of them such as Chinese elms are ripe for extensive

storm breakage unless they are properly trimmed before snow flies. A good arborist can eliminate most of the danger by removing excessive tip growth weak branches, and by cabling and bracing others. Shrubs along walks and drives should be trimmed and tied up so that they won't flop over and complicate snow removal.

Try to plan the work in the garden so you can take a weekend off for a drive in the mountains when the aspen begin to color. For your convenience and enjoyment, we are reprinting the fall color map of last year. —Pat



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The Green Thumb

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OCT.-NOV., 1958

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The Green Thumb

Vol. 15 OCT.-NOV., 1958 No. 9

Colorado Forestry and Horticulture Association

Orgonized in 1884

"To preserve the noturol beouty of Colorodo; to protect the forests; to encourage proper maintenance and odditionol planting of trees, shrubs and gordens; to moke ovailable correct informotion regording forestry, horticulturol proctices and plants best suited to the climate; ond to coordinote the knowledge and experience of foresters, horticulturists and gordeners for their mutual benefit."

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THE COLORADO FORESTRY AND HORTICULTURE ASSOCIATION

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MEMO

Calendar of Events

"Fun with Flowers" — A lecture and demonstration is followed by the making of arrangements. Each person brings containers, mechanics, and material. The workshops are open to everyone. Due to popular demand the workshops will be held each month at the following times and places:

Workshop No. 1 — 1422 Kenton, Aurora, Second Thursday, 9:30 a.m.

Workshop No. 2 — Lakeside Denver Dry Goods, 44th & Harlan, Denver, First Tuesday, 10:00 a.m.

Workshop No. 3 — Arapahoe County Fair Grounds, W. Belleview and Windemere, Littleton. Third Tuesday, 10:00 a.m.

Nov. 5—Botany Club meets the first Wednesday of each month, 7:30 p.m., Horticulture House. Lola Henson will speak on Leaves. December meeting will be a kodachrome show. Members should bring their own slides.

Nov. 9—The Home Garden Club of Denver, Inc., 1958 Dried Plant Material Show. Theme: "Colorado Calls," in U. S. National Bank, Sunday from 12 noon to 8 p.m.

Nov. 12—Organic Gardening Club of Denver meets second Wednesday of every month, Horticulture House at 8 p.m.

Nov. 13 — Denver Rose Society meets second Thursday of each month, City & County Bldg., Rm. 100, 8 p.m.

Floral Art Course: Opportunity School. Every Thursday 9 a.m.-11:30 a.m., 1 p.m.-3:30 p.m., 6:30 p.m.-9:15 p.m. There is no charge except for materials.

The Green Thumb Program—Every Saturday morning on KLZ at 8:45 a.m.

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Arrangement of the Month

This month's composition uses an unusual and artistic combination of materials. Dahlias of varying sizes in yellow and rust, graceful sprays of fruit-bearing barberry tinged with the red of fall, a handsome crabapple branch with maroonish leaves and dull red fruit, and a cluster of yellow and clear red chokecherries are arranged in an asymmetrical mass form. Color harmony has been achieved through a blending of yellows, rusts, and reds—all the rich colors so appealing and cheerful this time of year.

This arrangement was made for an afternoon tea table in the patio of Mr. and Mrs. L. E. Meyer of Santa Fe, New Mexico, who were hosts to those who joined the Los Jardineros Garden Club tour during Fiesta weekend.



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COMPOST IN SIX WEEKS

By MELANIE BROWN

Pity the sad, restricted dub,
Who knows not of a garden club,
Where women may gather without hurt,
And reverently "dish the dirt,"
And know how high a heart may leap,
Over a well-built compost heap.
—Courtesy MRS. E. C. HORNE

Those of you who saw Mrs. Schoo's exhibit at the Garden Fair on how to make compost will remember the rich, black, loamy humus that was the finished product of the compost heap. A great deal of interest was generated by the display and so we felt autumn with its air of crisp excitement and rustling leaves would be a good time to tell you how to use these leaves instead of burning them.

Making good compost requires some space and a fair amount of attention. If you are not prepared to supply these, it is better to forget the whole project. Compost poorly made results in the wrong kind of decomposition which is putrefaction. A good compost heap should have little, if any, odor and should break down into rich, loose, sweet humus. Whatever effort it takes, you will be repaid many times over.

WHY HUMUS

According to Herb Gundell, County Agent for Denver and past president of the Colorado Forestry and Horticulture Association, compost or humus is valuable because:

"The soils generally found in this area are not exceptionally poor, except that they are largely of mineral origin and lack organic matter. The ability to grow plants successfully in such soil depends entirely on our willingness to supply the missing organic matter, to bring the level of humus to 4 or 5 percent.

"There is no way known, at present, by which this humus material can be supplied except by costly hauling in and spreading across the surface of the lawn area large quantities of animal fertilizer, leaf mold, compost, or similar material. Experience has shown a minimum of two cubic yards of these materials is required for each 1,000 feet of new lawn area."

This mainly applies to those putting in new lawns, but the need for humus applies even more to flower and vegetable gardens where the soil has hard usage. Good compost helps make dead or depleted soil live again. Living soils in turn help make healthy plants which in their turn make healthy animals and men. The residue of plants and animals and man should then go back to the compost heap to complete the cycle.

Compost, in itself, is not an important fertilizer for it contains only a low percentage of nitrogen, phosphorous, and potash. Its analysis is 1-1-1. Its importance lies in its ability to make these elements, which are present in soil available to the plant through the action of its bacteria.

Humus contains literally billions of soil microbes which decompose and convert organic matter such as fallen leaves, withered plants, animal droppings, and particles of human food into food that can be absorbed by plants. Some of these microbes or bacteria liberate nitrogen from the soil to help meet the

plants' requirements. Others break down and convert the elements — especially trace elements — into soluble compounds plants can assimilate.

As with humans, proper nutrition helps plants resist disease and insects. Research at Missouri University has shown that plants fed exclusively on chemicals produce an unbalanced amount of carbohydrates or sugars. Insects prefer these "sweet" plants. If you want less insect damage, give your plants more organic material to help them maintain a balanced diet.

Plants feed through absorption; therefore, moisture in the top soil is essential. Humus or compost has a great capacity for holding water, absorbing several times its own weight and can release it slowly to plants as needed. Serving as a temperature regulator for the soil, humus protects soil from over-heating during the day and over-cooling at night. It also binds sandy soils and loosens clay ones. It hampers run-off during heavy rains by keeping the soil from packing and puddling. It is one of the factors that prevents the forming of dust bowls and gullies.

Humus maintains a thriving earthworm population which helps aerate soil, and if earthworms are added to late stages of the compost process, they help break down what raw material is left, for composting is a process of predigestion. Changes which gradually take place, say on the floor of a forest, are compressed into the space of a few months or even a few weeks. However, it is important that the same natural agents — bacteria, fungi, and earthworms be employed.

HOW TO MAKE COMPOST

There are many methods of composting. Mrs. Schoo uses the formula perfected by the late Sir Albert Howard. She has speeded up this classical or "Indore" method from three months to about six weeks by shredding or cutting up vegetable and animal residues and turning the piles more often. The same proportions are used — two thirds vegetable and one third animal residues with a layer of earth on top. The addition of Fertosan helps stimulate bacterial growth in the breakdown.

Almost any vegetable matter can be used — leaves, weeds, stalks, chaff, grass clippings, kitchen wastes, coffee and tea grounds, spoiled hay, corn flower stalks, oyster and egg shells, sawdust, pine needles, hedge trimmings, pomace, sea weed, cottonseed meal, cocoa bean shell, brewery hops, etc. For animal matter, horse, cow, swine, sheep, or chicken manures are excellent because they contain 20% bacteria from the digestive tracts where they broke down food for the animals. If these aren't available, scraps of meat and fish from the table may be used, or dried blood, bonemeal, hornmeal, or tankage can be purchased. Your local seed store or hardware store can order these for you.

SUBSTANCES NOT TO USE

1. Any chemically sprayed material because it may retard bacterial action.
2. Charcoal, it withstands decay for too long a time.
3. Dish water, greasy matter interferes with air supply.
4. Coal ashes have same effect as charcoal.

5. Walnut leaves have toxic substances as do the roots and husks.

6. Sawdust, when it is over 5% of the amount of materials in the heap.

7. Waste paper because of chemical treatment in bleaching which retards decomposition.

LOCATION OF A COMPOST HEAP

The best location is a flat area, well-drained and close to a supply of water. It should be enclosed by fence, hedge, or walk, or if it is small enough, in a box. The size of a compost pile is adaptable to the amount of space available. The top of it should be saucer shaped to hold rain water or tap water. A pile should be kept as damp as a squeezed out sponge. Mrs. Schoo uses six wooden boxes. The first one is used to accumulate garden or vegetable wastes. The second starts the process with a mixture of two thirds vegetable and one third animal refuse. When the second box is full it is dumped in the third and so on until by the sixth box it is finished. Boxes one and six should be larger than the other four.

During the initial breakdown, properly made compost reaches a temperature of 160 degrees which will kill all weed seeds. During this stage, it should be turned frequently and kept damp. Otherwise air loving bacteria will not live and the heap will putrify. As this fermentation takes place the pile will shrink to about one third its original size. Turning the material in succeeding boxes is less important because a new type of bacteria takes over that is not as dependent on air. While there is still undecomposed matter, though, turning is advised.

TIME TO START COMPOST

Fall or spring is the best time for making compost. Mature compost can be put on as a mulch in fall or as a fertilizer and soil conditioner in spring. In fall, half finished compost may be applied because by spring decomposition will be complete. The addition of bonemeal and cottonseed meal increases its worth as a fertilizer.

HOW TO APPLY COMPOST

It is best to apply compost only to the top four inches of soil after it has been spaded up. This has a double purpose — it provides plant food and serves as an effective mulch against extremes of temperature, hard rains, etc. Apply compost liberally, 1 - 3 inches thick every year. Finished compost cannot burn. If you wish a higher analysis, add a commercial fertilizer. Organic gardeners never add anything of chemical nature but prefer raising the nitrogen-phosphorous-potash content by adding 1 part cottonseed meal, 1 part fish meal, 2 parts bonemeal, and 2 parts woodash or greensand. These will equal Morgro or some other similar commercial fertilizer in nitrogen-phosphorous-potash content. Compost is best when applied soon after it is completed. However, it will not hurt it to stand awhile. If this is necessary, turn the pile from time to time and cover it with burlap or with a heavy mulch of straw or spagnum moss until you are ready to use it. For greater bulk, add peat moss.

If there are any further questions, Mrs. Jan H. Schoo, 2650 Dexter, Tele. DE 3-1249 will be glad to answer them or to show her compost boxes.

"Old Herbaceous" On A Backyard Garden

By JAMES B. STEWART



View of backyard garden with urn and east terrace sitting wall.

The following story received Honorable Mention in our writing contest "How I Landscaped My Backyard."

We moved into our home, 400 Carr, in January, 1949 and shortly thereafter we engaged a landscape architect who prepared a planting plan for our garden. First off we erected a 5½ foot shadow fence (1″ x 8″ boards staggered on 4 x 4 uprights and painted white) which divided our 100 x 300 foot lot into two of 100 x 150. Our vacant lot to the east, planted in crested wheat, provides space for compost piles, cutting garden and for a cook-out around which are 3 long and wide benches which have storage space under the seats for hose, pots, etc.

The backyard plan provided for a deep shrub bed around an oval shaped lawn, a rose bed and a peony bed. Our first nursery order was for the following items: flowering almonds, Lemoine mockoranges, Nanking cherries, French hybrid lilacs, Japanese quince, wayfaring trees, forsythia, Austrian copper roses, snowberries, coralberries and spirea (Arguta, Vanhoutte and Froebel).

The shrub bed is edged with tulips. Mrs. John T. Sheepers (yellow), White City and Scotch Lassie (lavender). The tulips make way for Silver Medal petunias. I replant that variety year after year because they are such a pretty shade of salmon pink. The shrubs form a background for the flowers and the shadow fence a background for the shrubs. Back of all, in our east lot, is a row of Russianolives about 25 feet tall.

Besides the flowering shrubs, the double and single peonies, and the roses, there are iris, bleeding hearts, lilies, dictamnus (gas plant), shasta daisies and, of course, the annuals — all of which contribute to the summer gayety.

In the shrub bed are two dolgo crabs, two adstringens and a hopa, while in the oval lawn is a young red oak. Our pride and joy is a large perfectly shaped honey locust tree which shades our south terrace.

How we love our pinyon trees! There is a group of three, about 12 feet tall in a corner of the shrub bed formed by the shadow fences. In front of them is a good sized Mugho Swiss pine. Another group of pinyons is located at the end of the driveway.



Driveway with privet hedge. Pinyon trees are in background.

We converted the north part of our backyard garden (35 x 50) from a service area into what we call our "French" garden. Along the north property line there is a shrub bed and along the south side of the "French" garden winds a brick walk to a gate which leads to the east lot. Between this walk and the shrub bed is a graveled area with a table and benches. Shade is provided by an old plum tree and by a ringo crab. On hot days when we are enjoying that shade and quaffing a stein of beer, we call our "French" garden our "Bier Garten." On entering this spot that refreshes, one passes under an arched trellis covered with Goldflame honeysuckle.

Forming the west side of the "French" garden are beds 4 x 4 separated by brick walks. Each bed is planted in a different variety of floribunda rose—Pinocchio, Goldilocks, Poulsen's Bedder (our favorite), Improved Lafayette, Snowbank, Fashion and Glorious.

THE INANIMATES

Now we come to the "inanimates" which give a needed touch to the garden in summer and *make* the garden in winter. A daughter made us conscious of them and of their importance. "But," she cautioned, "don't over do it—no baby ducks on the lawn in a line behind the Mama duck!" So through the years as we added trees and shrubs and plants, we also remembered the "inanimates" and built with the idea of creating an intimate, sheltered garden—an outdoor summer room, if you will.

We built a low red brick wall around the front or west lawn, the aforementioned shadow fence around the backyard garden, and sitting walls around the south and east terraces. Red sand brick walks were laid where needed, bricks

being set about ½ inch apart. Stepping stones were placed in the shrub bed and in the bell shaped rose bed. Iron wickets have also been used to advantage.

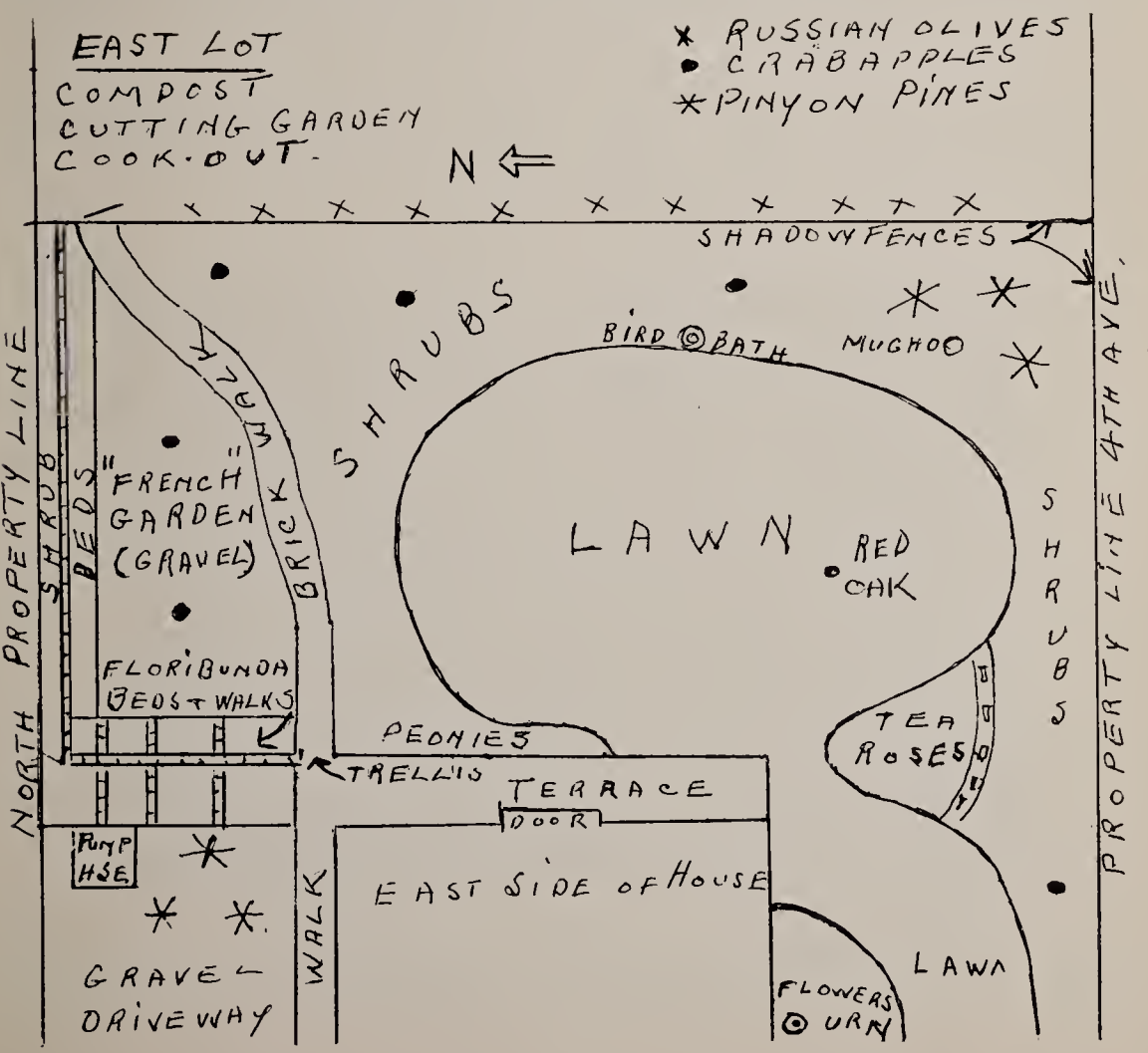
Of course we have a birdbath and at the entrance, beside the driveway, there is a wrought iron lantern (Mexican). The flag is displayed on our national holidays.

On each side of the door which leads to the backyard garden, there is a high back bench with storage space under the seat for small garden tools, insecticides, etc.

Our choicest "inanimate" is a large Italian urn, decorated with dolphins. By a bit of good fortune we arrived early on opening day, May 3rd, at last year's successful Garden Fair and had the honor of making the first purchase — our beautiful urn. And, what is more, the price was reasonable.

Looking back, it is easy to see that the smartest thing we ever did was to obtain the assistance, right in the beginning, of an experienced landscape architect—Mr. Irvin McCrary. An old Denverite, he and his family moved to California several years ago.

If it had not been for Mr. McCrary, we would not have been honored in the last few years by the visits of several garden tours. My wife, noting this bit of braggadocio said sweetly: "Why dear, if you only knew how to grow carrots, 14 say, our garden would be a little jewel." *Ouch!*





South terrace in winter. Mountains can be seen in distance.

PS: After writing the above, "Old Herbaceous" read an article by Sir Winston Churchill entitled, "Why I Paint And Why You Should Try It." Sir Winston's beautifully worded closing sentences are so appropriate that they must be shared:

". . . Plant a garden in which you can sit when digging day's a done. It may be only a small garden, but you will see it grow.

"Year by year it will bloom and ripen. Year by year it will be better cultivated. The weeds will be cast out. The fruit trees will be pruned and trained. The flowers will bloom in more beautiful combinations. There will be sunshine there even in the winter time, and cool shade, and the play of shadow on the pathway in the shining days of June."

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From The Land Of Enchantment

Viva La Fiesta! Viva! And welcome to Santa Fe! So you are greeted if you happen to find yourself in the capital of New Mexico during Labor Day weekend. The spirit of Fiesta is everywhere as Santa Fe celebrates one of the oldest historical events in the United States — the bloodless re-conquest in 1693 of Santa Fe by the Spanish conquistadores who were thrown out of New Mexico by the Indians during their bloody uprising in 1680. But the reconquest is also celebrated in solemn church rites climaxed by a candlelight parade Sunday night. All who wish to do so are invited to attend Vespers, take a candle when leaving, and walk in the procession to a place not far away, overlooking the city, where services are held at the foot of a large cross surrounded by 21 bonfires. These fires symbolize the 21 priests who were killed in the uprising. Candles are important during these days. Everywhere, in gardens and on house tops are "luminarios," brown paper sacks partly filled with sand to hold candles. When lighted, the candles glow through the sacks with a soft light —a wonderful southwestern tradition that could be used for summer garden parties here in the north.

The gardens of Mr. and Mrs. Kelly Kaufman, 1517 Canyon Rd., and Mr. and Mrs. L. E. Meyer, Old Pecos Trail Rd. were on a tour sponsored by the Los Jardineros Garden Club. Other gardens pictured here but not on tour are those of Mr. and Mrs. Frank Patania, Hillcrest Rd., Mr. and Mrs. Foster Hyatt, 1575 Canyon Road.



This picturesque courtyard, in one of the old authentic adobe homes of Santa Fe, is an excellent example of the amalgamation of the old world of Spain with desert living in the new, to form a distinctive and indigenous type of architecture.



Above: Covered patio separated from the house of Mr. and Mrs. Frank Patania, Hillcrest Road.

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Top: Approach and entrance to Patania house showing southwestern architecture landscaped with native trees.

Middle: A corner of Mr. and Mrs. L. E. Meyer's garden with well planted perennial border. "Luminarios" are next to low retaining wall. Hills of Santa Fe are in distance.

Bottom: Beauty and utility at the home of Mr. and Mrs. Kelly Kaufman. Pavement and barbeque are red flagstone, wall is simulated adobe.

Below: Close up of front door and porch of the Patania residence. A border of ageratum is to the left of the vase and geraniums on the right.









A SPLIT LEVEL GARDEN

By EDMUND WALLACE

American Society of Landscape Architects & Rocky Mountain Association of Landscape Architects.
Paul Bradford, Landscape Contractor



Stone, soil, water, and plants don't necessarily make an attractive garden. Coupled with a good plan, a competent landscape contractor, and enthusiastic clients, they usually do.

The Brooder garden is the result of careful planning within the limitations of the site, the attention given to construction details, and the skillful implementation of the design by the landscape contractor. Its real success is due to the patience, enthusiasm, and tender loving care of the Brooders themselves.

The Brooder house is an attractive ranch style home of Dutch Colonial influence. Its long low





lines of grey brick and white trim and its white louvered shutters framing the doors and windows create an impressive facade from the street. The walls are of used brick, laid up with weeping mortar joints and then painted a Colonial grey. Brick from the old Broadway theatre add charm to the large fireplace and ovens featured within. Dutch doors, an authentic hitching post at the landing, and other personal touches make the Brooder house an inviting one.

This theme, established by the architecture, is further developed in the landscaping by the use of weathered fencing, lichen-covered stone, and texture of plant materials. Set on an eminence above the street, entrance to the house is gained by swinging up a circular drive to a landing of split pavers, where the visitor is deposited on a covered entrance patio.

Transition between entrance and street level is accomplished by a rock garden of lichen-covered stones carefully selected by the contractor and artistically arranged against the slope. These provide planting pockets for a variety of bulbs, perennials, and rock plants giving continuity of color throughout the season.

From the car landing, one can go directly to the house, or along a flagstone walk leading through a split cedar gate into the garden.

The first garden "room" has no lawn. Its planting of evergreens, shrubs, and perennials is raised above the gravel floor by redwood planks. Gravel being rough on ladies' shoes, loose flagging has been laid in an informal pattern from the gate to the lawn area.

The angling of the redwood planter as one leaves the first garden room starts the visual clockwise rotation along a curving flagstone walk toward the lower garden. This walk encircles the grass panel along the length of the house and is paralleled by a curbing of native stone and a lodense privet hedge and is backed up by a planted slope and split cedar fence.

Rhythm is attained by repetition of jogs spaced in arithmetical progression around the curbing, each



jog being accentuated by a similar jog in the hedge behind the curb and the placing of a specimen juniper in back of the jog.

As easily as a ratchet turns in one direction, but not in the other, the eye travels in clock-wise progression toward the main objective of the visual journey—the lower garden—heightened in its importance by wide stone steps leading from the upper level.

Access from the house to the garden is from the north end of the family room. The area between this door and the service entrance was, of necessity, excavated to give light and air for basement windows. As the house was already below the rear lot line, this resulted in a difficult pocket at the corner of the garden. Problems like this are always a challenge to the designer and, as a result, this pocket became the most intensely developed feature of the design—a flagged tea and cocktail garden.

Enclosed by the building on one side, and a curvilinear drylaid stone wall on the other, this sunken garden affords an atmosphere of quiet and privacy. It is connected with the upper level and house by four wide steps which lend dignity and from which one commands an angle of view over this lower portion of the garden.

From these steps extends a circular wall that cuts back into the upper lawn, enlarging the area below, and providing a niche for the graceful lines of a white birch tree. As the wall reaches back into the





garden, it is interrupted, and its course changed by the projection of a large flat stone, selected by the contractor after much searching. It is difficult enough to procure small stones left exposed at a quarry for a time sufficient to accumulate lichens, but only by chance did such a large one get left behind. At this juncture in the wall is a small pool into which water cascades from a rocky ledge above, adding soft accompaniment to restful surroundings.

Unifaction of design between the two garden levels is achieved through the use of such common denominators as fencing, flagging, and plant materials. A redwood vertical divider along one side of the lower garden planted with vines screens from view a salad garden, handy to the kitchen door at the upper level, and to a brick floored drying yard.

Continuing on our journey, smaller, less imposing steps lead back to the house level where a



brick walk, laid in sand, completes the cycle to the front gate on the opposite end of the house from where we started. Bricks are used here in the walk, in the adjacent drying yard, and in the low wall between them to distinguish this service area from the garden where flagging and stone were used throughout, and to achieve consistency with the adjoining brick building.

These are some of the features that provide a novel and pleasing space experience in a split level garden. Nor does the repetition of the experience become monotonous —the wealth of interest provided by textures of pavement and fences, highlights of plantings, music of the water fall, colorful birds attracted by feeding stations, and changing shadow patterns as the sun moves—all contribute to the continuous charm of the composition.

Carrying The Mail For Forest Conservation

A forest conservation commemorative postage stamp designed by Rudolph Wendelin of the Department of Agriculture will be officially released October 27 at the American Forestry Association's annual meeting at Tucson, Arizona. It will tell the story of wise-use forestry in America and its relationship to soil, water, wildlife, and timber.

Since the Forest Conservation Stamp commemorates the 100th anniversary of the birth of that great forestry advocate, Theodore Roosevelt, the American Forestry Association expects that the new issue will enjoy a big first day sale.

This stamp, and its official first-day issuance at Tucson, is only one of the features at what promises to be the biggest AFA convention in years. This year's meeting will have a hemispheric tone due to the many Mexican leaders who will attend and the keynote address by Dr. Luis Quintanilla, Ambassador of Mexico to the Organization of American States. A trip into Mexico will be another feature. The theme of the meeting will be "Water, Forests, and People" and the keynote speaker will be Dr. Richard E. McArdle, Chief, Forest Service, Department of Agriculture.

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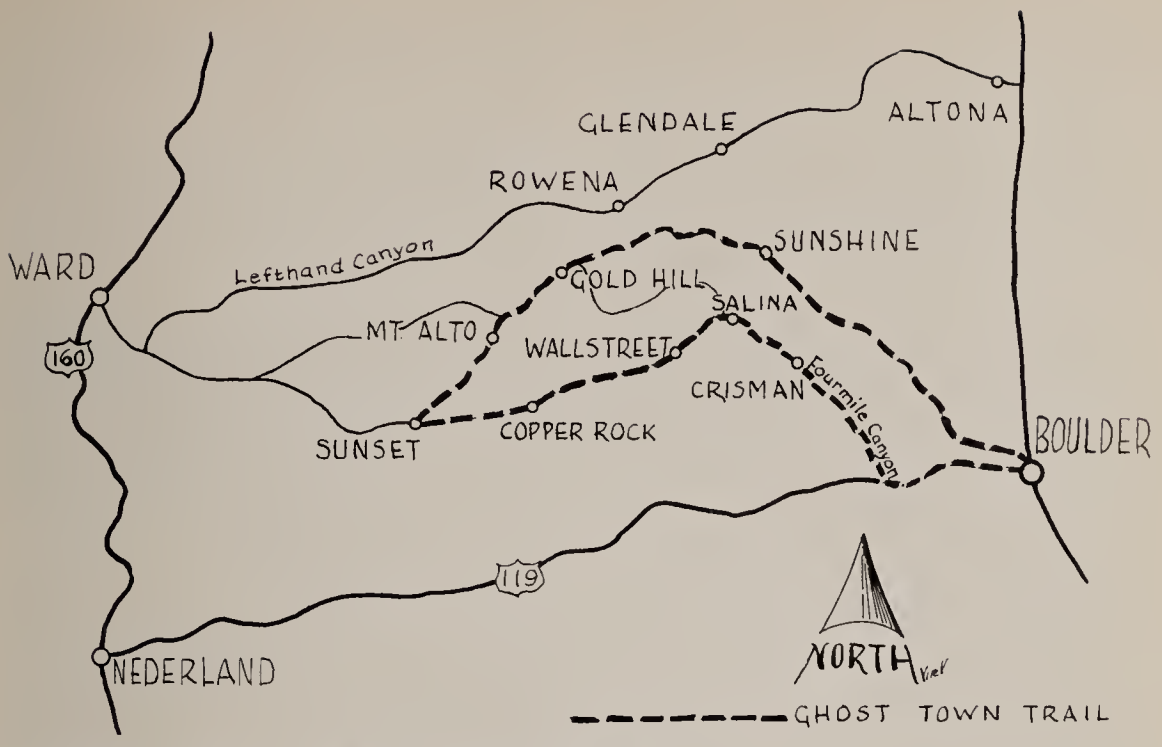
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TRIP OF THE MONTH
GHOST TOWN TRAIL

By MARIAN TALMADGE AND IRIS GILMORE

If you enjoy a short, though interesting trip almost any time of year, take one of the ghost town trails up behind Boulder, Colorado. Since the snow usually doesn't get too deep up here, the roads are open during the winter.

Pack a lunch and plan a few hours away from your routine life. Take along your camera and maybe in fall a heavy robe for a nap under the pines.

Follow Pearl Street west out of Boulder to Boulder Canyon where you immediately enter the mountains. Boulder Creek is a rushing, sparkling stream cutting its path through a large rocky canyon which accounts for its name. Cottonwood, willow and boxelder trees are scattered along the creek banks, and as soon as we drove a short distance we immediately noticed pine climbing up the rocky hillsides.

There were a number of picnic and camping places along the way. Two miles into the canyon we saw a sign pointing to Four Mile Canyon. Here was a nice wide macadam road with lovely new contemporary houses dotting the hillsides.

Since we took this as a fall trip we noticed the red sumac covering the cuts in the road, the hip high sweet clover going to seed along the road. There were many currant and serviceberry bushes along Four Mile Creek just starting to turn color.

A sign, "Cow Poke Guest Ranch" heralded by an old plow and painted attractively, appeared to our right. After about two miles, the hard top road ended, but the graveled road was well maintained and plenty wide. It started climbing

and twisting and the creek dropped below.

After four miles we came to Crisman, all that is left of a once lusty gold mining camp that boasted three saloons and two all-night dance halls.

Here the quiet and peace is a real contrast. Only the hum of insects and an occasional car breaks the silence. Down to the left is a deadend road where there are a few restored cabins and the broken down old box car which was once the depot on the narrow gauge. Its corrugated tin roof and gaping paneless windows are a sad sight.

But the most interesting spot in Crisman which you'll miss unless you watch closely is Mr. Slattendale's garden climbing up the hillside back of his Victorian house dating back to the early days.

We'll just hint about that intriguing garden because we plan to write a story about it later for *The Green Thumb*. But if you take this trip, be sure to see what a retired carpenter does during long winter evenings back in the hills.

Mrs. Slattendale's garden was gay with gladioli, zinnias, asters, geraniums, petunias, marigolds, cosmos, roses and morning glories. A real old-fashioned garden, bright in the Colorado sun.

From Crisman on we noticed the clematis with its feathery pods, many prickly poppies, sunflowers and even Bouncing Bet. The stand of blue juniper in this part was particularly nice.

A mile beyond were the remains of a gold reduction mill on the right, slowly slipping down and rotting into the hillside. A swarm of yellow and orange butterflies flew past as we stopped to take pictures.

About a quarter of a mile further a sign pointed right to Summerville, Gold Hill, Salina and the Little Church in the Pines. But we didn't take that turn. We saved it for another day.

Instead we turned left taking the road to Wallstreet and Sunset. There was a Victorian house with the usual gingerbread trimming on the right, and we saw many prospect holes and tunnels as we drove up the canyon.

A mile beyond was the sign announcing Wallstreet, on the Switzerland Trail. The cabins built and restored here did have a flavor of old-world about them. There was a particularly pretty garden growing around a log cabin chinked with white mortar. California poppies, coxcombs, red petunias, bachelor buttons all bloomed freely.

They were grading the road here and if we closed our eyes, it wasn't hard to imagine the sound to be one of the old narrow gauge engines puffing around the hill.

Next we passed Hubbard's Rubarb Patch, then an abandoned one-room schoolhouse sitting dejectedly above its stone retaining wall. The bell was gone, some of the windows were broken, and only the flag pole remained to remind us of happier days and children's voices.

Two more miles and we passed Copper Rock, also an abandoned ghost camp. The stream meandered slowly to our left and pine cones came bouncing down on either side.

Then the valley broadened within the next mile and we came to Sunset with its name proudly painted on an abandoned, though red painted, boxcar. There were many

mullein plants growing here, very tall, reminding us of young saguaro cacti.

We made a sharp right turn where a sign said, "Mt. Alto." Here we left the county road and followed the old narrow gauge roadbed. It was exciting as it climbed abruptly with many curves, each view getting more and more beautiful.

The sign "Drive Carefully" means what it says. This is a one car road with turnouts for passing. It's a good road, though, rocky with some deep ruts, but passable.

We crunched over hundreds of



Ruins of the old mill and tumbling building about a mile beyond Crisman.

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pine cones, went through some old rock cuts, saw the remains of the wooden trestles where the train once crossed until three miles later we rounded a curve and left Four Mile Canyon behind.

The ponderosa pines here were very large, and soon we saw the Arapahoe peaks and glacier sparkling in the sun. Another mile and we were on Mt. Alto, terminal of the narrow gauge where excursions used to run every Sunday and on holidays.

Only an old stone chimney and a monument where the fountain once stood were there to remind us of the many gay times spent here. But Mt. Alto is the same beautiful place — a quiet spot to eat lunch, hike, gather pine cones, or just rest. We could see long distances in every direction.

Two miles along the road took us to another county road. The left turn would have guided us down Sawmill Hill to Ward, but we took the right turn to Gold Hill. Now the aspens with their golden burden hugged the roadsides.

We arrived in Gold Hill abruptly, seeing first the old school house with a lone boy sitting on the steps eating his lunch. This small village is one of the best preserved of the gold camps because many cabins have been restored for summer homes and even year round living.

The most famous place is the Blue Bird Lodge where Eugene Field is reputed to have written "Casey's Table d'Hote." The Lodge is open in the summer.

From Gold Hill we took the left turn for Sunshine Canyon which is quite steep but very picturesque. Again we saw the Arapahoe peaks, then suddenly wide views of the plains, Longmont, Valmont, and even the toll road to Denver swung into view over the hog backs.

A couple of miles down we passed Snowbound Charlie's cabin still intact, although the old prospector died a couple of years ago.

The road dropped rapidly now toward Sunshine Creek. Sunshine, the ghost camp, was off to the left about a mile. Ahead of us we saw the red cathedral-like rocks which are northwest of Boulder.

Around a couple of more curves and we found ourselves driving abruptly right into Boulder ending our most interesting trip through ghost camps.

Friends in Boulder tell us that this road is truly enchanting on a moonlight night. Some evening we're going to try it!

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New Garden Information Center Takes Shape

By ROBERT L. WOERNER

The public announcement on September 21, 1958 of the purchase of the Elmer Hartner home at 909 York Street by the Botanical Gardens Foundation marked a great turning point in Colorado horticulture.

In previous articles in *The Green Thumb* a building for a headquarters has been discussed in connection with the new herbaceous unit of the Botanic Gardens. Now this building has become a reality. At the same time, the Botanical Gardens Foundation has amended its agreement with the City of Denver so that it now has permission to develop the entire 18 acres of city property adjacent to the Hartner home. An additional 2 acres between York and Josephine Streets will be available for parking and for children's gardens.

The Hartner home will make an excellent botanic garden headquarters. Its location in relation to the new herbaceous gardens is ideal. The north property line which extends 230 feet west from York Street is shared with the new garden unit, so that the headquarters can be included as a part of the development plan.

This new center is conveniently located with reference to north-south and east-west one way streets and traffic arteries, assuring easy access from all parts of Denver.

The well-constructed building is set in attractively landscaped grounds which can become a part of the botanical displays. A proposed greenhouse and a horticultural hall or auditorium can be located close to the headquarters building to create an efficient horticultural center.

Adequate space is available in this large home to meet the pressing needs of two other important horticultural groups in the state. The Colorado Forestry and Horticulture Association will be forced to vacate its present quarters at Horticulture House on Bannock Street when that building is razed to make way for the new Denver University law school. The Colorado Federation of Garden Clubs has been without a headquarters since the Garden Center was demolished for construction of the Valley Highway. The Foundation had both of these organizations in mind when it undertook the task of securing a headquarters at what will become its most important garden unit.

The Colorado Forestry and Horticulture Association will be provided with ample office space for its staff. A large library in the building will house the fine collection of books in the Helen Fowler Library of the Association.

Gardening groups which have been meeting at Horticulture House

will find the large living room in the new headquarters more adequate for their needs. This room will seat more than 75 people and will be used for scheduled horticultural meetings of all kinds.

A separate office will be available for the Colorado Federation of Garden Clubs. Records and books of that organization will have a permanent home which will be accessible to all of its members.

Other rooms will provide space for the board and committee meetings of the three organizations. The present kitchen in the building will be adequate for luncheons, teas, and similar occasions.

Details of the use, administration, and maintenance of the building will be worked out by the Foundation with a house committee including representatives from the Horticulture Association and the Federation of Garden Clubs. One of the proposals to be considered will be the utilization of a receptionist to handle incoming calls and provide information for visitors. This will eliminate duplication of effort and give better service to the public. Questions on gardening and related subjects can be directed to the proper organization quickly and efficiently.

The problem of maintaining a separate reference library for the Botanic Gardens will be eliminated since the Helen Fowler Library will be available for that purpose. Magazine subscriptions will not have to be duplicated for the three organizations. Funds presently spent for duplicate periodicals can be used to increase the number of titles available.

This new headquarters building will be available for occupancy sometime early next spring. Every gardener in Colorado can look forward to this new horticultural center with its excellent library, meeting rooms, and the information facilities provided by the Federation, the Horticulture Association, and the Botanic Gardens.

Work on the new herbaceous unit should be well underway when the move to the new building is completed. The Botanical Gardens Foundation will put forth its best effort to complete a portion of the annual and perennial plantings scheduled for the new unit during 1959, the Centennial year.

Boy Scouts and Girl Scouts are two organizations helped by United Fund. They in turn teach their members the values of conservation by actual field work in tree planting programs, field erosion programs, and anti-litterbug campaigns. These values learned in childhood will carry over into adulthood and will in turn be passed on to the next generation in an ever widening circle. GIVE TO UNITED FUND.

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New projects are well marked during construction.

TENTING ON THE OLD CAMPGROUND

By JOHN A. RUNDGREN

Millions of American Citizens, on returning to some favorite spot in the national forests after World War II were dismayed to find a flood of newcomers had taken over the old campground and surged out into surrounding undeveloped areas.

They listened, with rare patience and understanding, as Forest Officers described their plight: recreational improvements built in the 1930's coming apart at the seams; a tide of visitors overflowing into undeveloped areas lacking sanitary facilities and fireplaces; the risk of forest fires and stream pollution increasing; a budget tied to visits and wage scales of the '30s while a mulch of litter developed on the forest floor and the Kleenex bushes bloomed on every road.

On July 1, 1957 this trend ran into its first reversal as the Forest Service got underway with a five year program to modernize existing facilities and to provide adequately for the 66 million visits expected annually by 1962.

On the national forests of Colorado and nation wide, a massive cleanup job began. Recreation Foresters happily drove stakes as rehabilitation jobs and new site plans took form on plane table boards. Brows furrowed over questions raised by a look ahead. Where do we stand now? How many family-units (table, grate and related facilities) by 1962? How fast must we move to catch up. Do we need a picnic area, a trailer camp, or simple back area facilities at this point?

Even through the winter months Operation Outdoors moved forward as crews in central shops built up a stock pile of facilities for spring delivery.

From other sources a flow of new designs began to standardize recreation area layout and facilities. Simple, durable, functional and at-

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tractive were the key words of the new designs.

Engineers and Recreation Foresters pooled their talents on new and unfamiliar problems. How do you chlorinate a water supply to make it safe? What curve radius for a thirty foot trailer? Is it safe to let traffic back on the highway at this point?

In this second year of its existence Operation Outdoors is answering these questions and a host of others.

It is moving smoothly and with confidence toward meeting the announced objectives.

Tenting on the *new* campground will be a satisfying experience.

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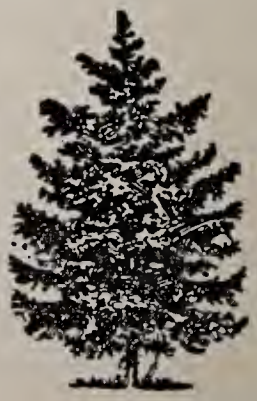
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THE LEAF

During a night of autumn rain, a dead oak leaf fluttered from the tree and lay plastered on the wet concrete. When morning came and the sun shone, moisture evaporated quickly from the bare surroundings but around the leaf, moisture remained for hours after the rest of the sidewalk was dry.

Isolated on the sidewalk, one wet oak leaf reveals clearly what an entire woodland may not tell at first glance. There are thousands of fallen leaves in autumn, millions of leaves. Their work on the tree is done, their chlorophyll finished, their starches changed into sugars and sent down into the woody parts of the tree. With a waxen seal formed across the end of each leaf stem where it joined the twig all summer, moisture is prevented from entering, and so the leaf dries. As far as the tree is concerned, the leaf is useless.

Detached in a breeze, or simply by its own weight, it drifts to the ground. But a heavy rain beats them down, softens them to the contours of the earth, begins that long process of changing them into humus. It is in the form of leaf-mold or humus that the dead leaf again becomes useful to the tree and the surroundings.

This leaf-covering in autumn is tremendously important to the well-being of the woods, just as it is to the garden which has been carefully covered with raked-up leaves as a mulch over bulbs, roses and other perennials. Snow falling on it is held lightly suspended above the earth, and when the snow melts, water trickles gently through the leaves and humus instead of running off quickly.

Chemicals in snow-water and rain-water combine with the substance of the dead leaves and reduce them to a rotting fabric which eventually becomes part of the rich mold usually to be found in a woodland. This is why old, unlogged, unpastured, unburned forests have such great trees and so lush a growth of plants; why the earth is so deliciously springy to walk upon and not muddy after rain. This is why the denuded woods, the well-raked park, become increasingly more sterile as woodland plants do not find enough food, moisture and loose earth in which to grow. Leaf cover is the secret of true conservation of the woods, the secret of preserving not only the plants and animals, but the essential, ever renewable moisture as well.

Reprinted from THE LIVING MUSEUM, September 1957 a bulletin of the Illinois State Museum in Springfield, Illinois.



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Conservation Policy Of The Colorado Federation Of Garden Clubs

By KATHRYN KALMBACH

At the State Convention of the Colorado Federation of Garden Clubs held in Durango in September of 1955, the following policy relating to the preservation of our state's wildflowers was adopted:

"No native plant material, as listed on our Colorado Conservation List shall be shown in competition. Educational exhibits of native plants should be encouraged and promoted. These exhibits may take the form of individually labeled specimens in water, potted plants, dried specimens, or pictures."

The National Council of State Garden Clubs says, every Garden Club should be "having conservation displays at every flower show."

If every garden club in Colorado in 1958 would give a prominent place in their flower shows to the list of Colorado flowers which need protection, along with illustrations or specimens of as many plants as can be obtained, their conservation program would receive a great deal of support, since flower shows are largely attended by the general public as well as garden club members.

Every year increasing numbers of visitors come to our state who will see and admire our beautiful wild flowers. We must exert every effort to see that they only *see and admire* and "leave for others to enjoy."

One needs only ride from Denver to Boulder along the popular turnpike to see what is happening to the former open fields. And it takes no great imagination to visualize in the not too distant future a continuous community between these two cities. Yet many of us can well remember seeing a number of choice flowers, now on our Conservation List, growing where the builder's bulldozers now turn the terrain into streets and building sites. Similar scenes are taking place in many parts of Colorado. It therefore becomes increasingly important to set aside areas where natural beauty may be maintained inviolate.

The wild flower Conservation List is only one small effort toward this end. Without legislation we realize it cannot be enforced, but much good can come from public education.

Some will claim we have some

"Of all forms of cultivating flowers rock gardening is the most fascinating. Within a small space you may grow innumerable dainty plants, which would be swallowed up or would not thrive in the border—delicate Alpines, little creeping vines, cool mosses, rare orchids, and much of the minute and charming flora of the woods and mountains."

—Ellwanger: "The Garden's Story"

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plants on the list which are plentiful, but careful study will reveal that those plants, plentiful in certain areas, may be rare in most other parts of our state. Colorado's various vegetation zones support a very specialized flora. Soil, rainfall, altitude, all vary greatly within short distances in Colorado.

We believe *every* plant listed, as well as many not on the list, should be rigorously protected, and, as noted at the end of the list, "any other flower if rare where found."

COLORADO CONSERVATION LIST

DO NOT PICK, PULL, DIG OR IN ANY WAY DESTROY THE FOLLOWING PLANTS:

Blue columbine *(Aquilegia coerulea)*
Tulip gentian *(Eustoma russellianum)*
Wood lily *(Lilium philadelphicum)*
Fairy slipper *(Calypso bulbosa)*
Yellow lady's slipper *(Cypripedium calceolus)*
Parry primrose *(Primula parryi)*
Fringed gentian *(Gentiana thermalis)*
Leather flower *(Clematis hirsutissima douglasi)*
Mountain clematis *(Clematis pseudo alpina)*
Glacier lily *(Erythronium grandiflorum)*

I would like to see the word *flower* replaced with *plant*. In common usage we speak of "picking a flower." In our loose, granite, mountain soil, it is often difficult, if not impossible, to "pick" a flower — instead the whole plant comes out of the ground as one seeks to break the stem. So do let us all remember to "leave the flowers (and plants) for others to enjoy," a slogan used on entrance signs in all of our National Parks.

Red columbine *(Aquilegia elegantula)*
Prince's plume *(Stanleya pinnata)*
Pipsissewa *(Chimophila umbellata)*
Boykinia *(Saxifraga jamesi)*
Birdfoot violet *(Viola pedatifida)*
Wood nymph *(Pyrola Moneses uniflora)*
Dwarf laurel *(Kalmia polifolia)*
Dwarf cornel *(Cornus canadensis)*
Alpine columbine *(Aquilegia saximontana)*
Twinflower *(Linnaea borealis)*
All ferns except bracken
All paint brush *(Castilleja sp.)*
All ball cacti
All alpines
All bog orchids and coral root
And any other flower if rare where found.

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CHARLES L. WEDDLE



On June 24 in St. Louis, Missouri, soft-spoken scholarly Charles L. Weddle, president and founder of Pan-American Seeds Inc., Paonia, Colorado, received the Medallion of the All America Selections for outstanding "Achievement in Horticulture" at the banquet of the American Seed Trade Association. He is one of the youngest ever to receive this award which was given in recognition of his outstanding breeding work in first generation petunias and snapdragons, and for his pioneer work in this field.

A plant geneticist and researcher, Mr. Weddle received his early education at Texas Technological College, a Masters degree from Michigan State, and was an instructor in floriculture at Cornell before he began commercial seed production. In seed production he pioneered and specialized in the development of F_1 hybrid flowers, and was the first American to solve the problem of breeding all-double petunias through hybridizing. He was also the first to produce them commercially in the United States. Today he has some 30 varieties of F_1 hybrid petunias to his credit. He has developed more All-America winners than any other flower breeder and is now hybridizing snapdragons and zinnias as well. Already he has developed a new outdoor summer flowering snapdragon Panorama Strain for 1958.

Helping Mr. Weddle in his work are four M.S.'s and one Ph.D. Breeding is carried on in Colorado and hybrid seed production in Costa Rica. Over the years, Mr. Weddle has consistently worked closely with station and commercial researchers, unselfishly sharing information and ideas with others to help stimulate faster progress and greater accomplishment in the development of a new world of flower colors and types for gardeners everywhere. A Coloradan by choice, Mr. Weddle says this state has the finest climate in the world for breeding and growing petunias.

The following are just a few of his famous hybrids:

Allegro, Caprice, Sonata, Minuet, Nocturn, Rhapsody, Ballerina, Prima Donna, Fire Dance, Maytime, Comanche, and Paleface.



Seasonal Suggestions

Have you ever given much thought to the fact that this column is repetitious or that it might be difficult to write because of that factor. A bit of research into the past reveals that while times have changed, many of the essentials of gardening remain unchanged. For example, the following suggestions for October appeared in *Ladies' Companion to the Flower Garden* edited by A. J. Downing in 1859: "Bulbs of Hyacinths, Etc. are planted in pots. Anemones are also planted in beds. The dead leaves of trees and shrubs are swept up and laid in heaps to decay for vegetable mould. The Dahlias which have been killed by frost, have their tubers taken up and laid to dry; after which they are packed up in boxes, or laid in saw-dust, or malt-dust, to preserve them from frost. The remainder of the green house plants are taken in, and those that are left out are covered carefully at night from the frost. The gravel walks are swept and rolled occasionally, and the gutters and drains should be all opened and cleared. The turf should be swept, but it need not now be mowed oftener than once a fortnight or three weeks."

Today we need only expand on these suggestions and make minor changes. Hyacinths and the other spring bulbs, tulips, narcissus, and crocus can be planted now and until such time as the ground becomes unworkable because of frost. Here in Colorado planting depth is quite important. Plant tulips, hyacinths, and narcissus 8-10 inches deep and crocus 4 inches deep. Remember to water these bulbs during the winter in case of a long dry period.

Clean up time is here again, and as the above quote indicates, leaves and other garden debris can be a bonus in spring as compost. For specific information on composting see page 320. To rake or not to rake is often the question. Around homes where few large trees exist, a light covering of leaves on a lawn will do no damage. However in areas where there are numerous large trees, heavy mats of leaves build up and can do considerable harm. Then it is best to rake the leaves, leaving only a light covering. Any excess of leaves can be used in the compost pile or as mulch for the shrub borders.

The methods of caring for dahlia tubers hasn't changed much either. Today we suggest spagnum moss or vermiculite for packing. Then too, many gardeners today prefer to divide their tubers now and dip them in melted paraffin to protect them from drying out through the winter. Store dahlias at 40-50 degrees temperature. We might also mention the storage of cannas and gladiolus. With cannas, cut back the tops to six inches, dig with a clump of soil, and store in a semi-cool (50°-60°) location. For gladiolus, dig and remove tops and old shriveled corms, dry several days, place corms in large paper bag, add a tablespoon or two of a garden dust containing D.D.T. and a fungicide. Shake well until corms are covered,

then store in a cool place, about 40°, in ventilated trays or mesh bags.

Any greenhouse or house plants should be inside by now, but we do have plants such as roses that need additional winter protection. Trim long rose canes back only enough to prevent damage from winter winds and snow. Hill them up 8 inches with soil about the second week in November. Hardware cloth cylinders described in the October 1956 *Green Thumb* simplifies this task. Other semi-hardy plants can be protected by burlap screens and mulching.

The tip in the old garden book on cleaning gutters is timely, and while few people have gravel walks to roll, there are numerous other garden maintenance jobs to do, such as painting fences, leveling flagstones, and cleaning up garden tools. Put a light covering of oil on tools such as shovels, hoes etc. If your mower is dull, send it out to be sharpened instead of letting it go until the spring rush.

Lawn growth has slowed considerably so that only a few more mowings will be necessary. However, don't let the grass go into winter too long. Any height over 2½ to 3 inches is liable to cause matting and damage the lawn.

Everything in the garden should be given a thorough soaking the end of October — 12 inches deep for grass, 24 inches deep for perennials and shrubs, and 36 inches deep for trees. Adequate moisture through winter months will prevent most winter injury. Keep the hose handy during prolonged dry periods.

Like the suggestions of 1859 which haven't changed much, we're sure gardeners haven't changed either. Then as now, winter holds many reflections of the beauty of summer just past, and most of all the anticipation of a more beautiful garden next spring.—PAT.

In Memoriam Bert G. Clarke

Bert G. Clarke, owner and operator of Roberts Nursery, suddenly passed away Sunday, August 17. He will be greatly missed by his many friends.

Mr. Clarke purchased the Roberts Nursery from John Roberts in 1946 and continued operating it under the same name. However, he branched out, doing considerable landscape construction work at the Los Alamos Atomic Energy plant in New Mexico, at Camp Carson in Colorado Springs, and at several air bases in Texas. He also developed and operated a 1200 acre cotton farm west of Tucson, Arizona. Two years ago he purchased a ranch at Pine, Colorado which had 4100 acres of timber and pasture land, 300 head of registered Herefords, and a beautiful home. Bert thoroughly enjoyed his leisure time—irrigating the pasture land, riding horseback through the mountains to check on his cattle, or watching guests fish his well-stocked lake and streams.

We know Roberts Nursery will carry on as in the past with Bert's wonderful wife, Lucille, their two boys, Roy and Johnny, and with Mike, Leo, and Glenn at the nursery.

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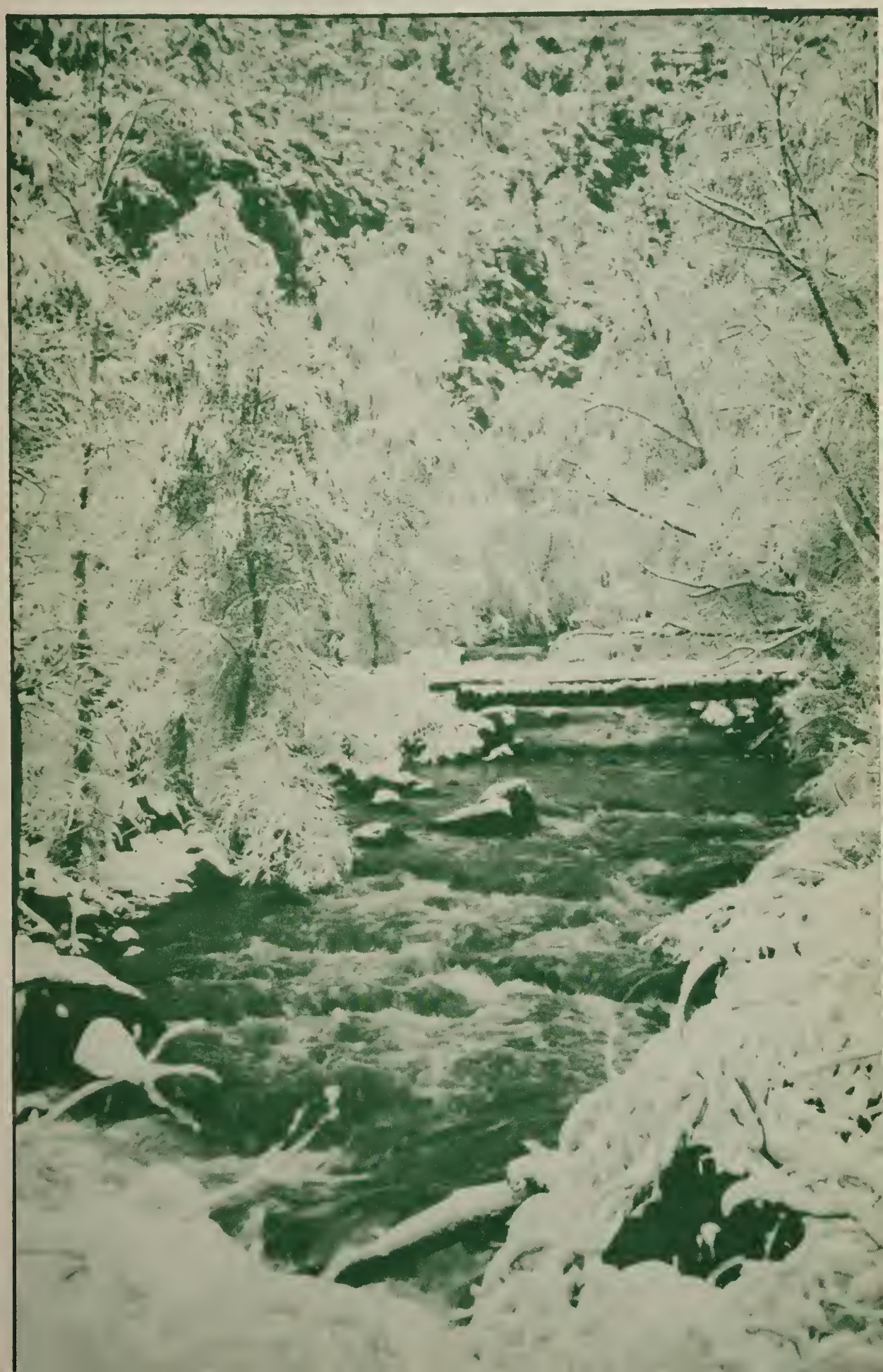
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The Magazine for Rocky Mountain Gardeners



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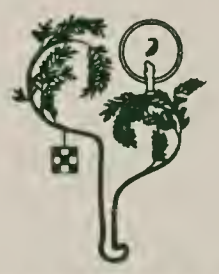
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The Colorado Forestry and Horticulture Association

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MEMO

Calendar of Events

"Fun with Flowers" — A lecture and demonstration is followed by the making of arrangements. Each person brings containers, mechanics, and material. The workshops are open to everyone. Due to popular demand the workshops will be held each month at the following times and places:

Workshop No. 1—1422 Kenton, Aurora, Second Thursday, 9:30 a.m.

Workshop No. 2 — Lakeside Denver Dry Goods, 44th & Harlan, Denver, First Friday of each month, 10:00 a.m.

Workshop No. 3—Arapahoe County Fair Grounds, W. Belleview and Windemere, Littleton. Third Tuesday, 10:00 a.m.

Dec. 10—Organic Gardening Club of Denver meets second Wednesday of every month, Horticulture House at 8 p.m.

Dec. 11—Denver Rose Society meets second Thursday of each month, City & County Bldg., Rm. 100, 8 p.m.

Jan. 7 — Botany Club meets first Wednesday of each month, 7:30 p.m., Horticulture House. Guest speaker: Les Viereck. Mr. Viereck was botanist on the American Geophysical Society expedition in Alaska which was connected with the International Geophysical Year program. His part in the project was the dating of recent glacial events through the use of botanical evidence. The talk will be illustrated with colored slides and the public is cordially invited.

Floral Art Course: Opportunity School. Every Thursday 9 a.m.-11:30 a.m., 1 p.m.-3:30 p.m., 6:30 p.m.-9:15 p.m. There is no charge except for materials.

The Green Thumb Program — Every Saturday morning on KLZ at 8:45 a.m.

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AN EDITORIAL

PHYSICALLY, Horticulture House will soon be but another memory when it is replaced by the Denver University Law School. It has served the Association well. Within its walls gardeners have met and planned horticultural progress for 11 years. Here, the Helen Fowler library had its beginning. Now over 4000 volumes, it ranks as one of the best in the west. Most of the planning for the Denver Botanical Gardens was conceived and executed at 1355 Bannock Street. Vigorous campaigns stemming from its portals have seen a state parks system established, arborist standards raised, parks property and trees saved from destruction.

Benefits to the home gardener have been immeasurable. At 1355 he has found a competent and reliable source of information as close as his phone. Questions from which end of a tulip bulb is up to where one can buy worm castings have been cheerfully answered at TAbor 5-3410. Lectures and special classes have added to the number of gardeners benefiting from our Association. The Green Thumb edited and compiled here has been a constant source of information for novice and expert alike. Reprints of special articles have gone to thousands beyond our membership.

You, as a member, can feel proud of your Association. It has made its mark in horticulture throughout the Rocky Mountain area.

The question is, where do we go from here? Will we leave our roots behind and rest on our laurels or can we count the 11 years past as stepping stones to a greater future?

We face the challenge now!

GARDENING and its myriad problems have risen to dizzy heights within the past few years. Subdivisions and super highways are swallowing up park land at an alarming rate. The demands on your Association are great.

We will soon move to the new Botanical Gardens House. There we will have larger and better facilities. Our library will have growing room. Lectures and classes can be held for larger groups. We will be in close contact with the Botanical Gardens staff, the Federated Garden Clubs, independent garden clubs, and many other organized horticultural groups, making a coordinated effort of all interested groups a distinct possibility.

The future looks bright, but in the final analysis of any organization such as ours, it's the membership that makes it tick. Your financial support is needed and appreciated. However, personal interest is the only sure way to quicken the pulse of the Association. You know the Association, what it has done, and what it is doing, but others don't. Sell the idea to your friends and neighbors. This you can do at home. If you have time, there are committees on which you can serve and become an active participant. A going concern is a growing one. Let's all do our share to make this area a better place to live—through gardening.



ORCHIDS AS HOUSE PLANTS

By REBECCA TYSON NORTHEN

Mrs. Northen is the wife of Henry T. Northen, plant physiologist and professor of Botany at the University of Wyoming. A trained biologist herself, Mrs. Northen has worked with her husband on research problems related to orchids and is the author of several books including "Home Orchid Growing" and "Orchids As House Plants" as well as numerous magazine articles on orchid culture. The following is Part I of a two-part article, Part II in Jan.-Feb.

The secret to growing orchids as house plants is to choose kinds whose needs you can fulfill. Orchids come from a wide variety of climates, and therefore cannot all be grown under any one set of conditions. However, if you will suit the orchid itself to the conditions you have to offer, it will probably make itself just as much at home in your living room as it would in a greenhouse.

Temperature and light are the first considerations. The night temperature in a home is often not as cool as many orchids would like. Orchids must not be too hot in the daytime, either, but night temperatures are critical. It is a challenge to give orchids enough light because a home, with its solid ceiling and wall sections, cannot offer as many hours of full light as can a greenhouse. If you provide proper temperature and enough light, you can manage the other needs such as watering, humidity etc. well enough.

All orchids need good light. If we

were to divide them into three groups according to this requirement, we would come out with something like this: a group that needs extremely good light (and these we do not advise growing in a home), a group that needs excellent light, and another that needs very good light. They should all have some direct sun. In an east window they can take direct sun without burning, so this is probably the ideal exposure. A south window receives direct sun during the winter, but not in the summer. A west window can be managed but requires more care, as it becomes quite hot in the summer. We like to move our own plants from a south window, where they get sun from October through April, to a west window for sun during the summer.

The window should be unobstructed by curtains allowing the plants face clear glass. During the time the sun is shining on them, feel the leaves to see if they are becoming hot. If so, pull a sheer curtain (a thickness of cheesecloth is good) across the window, just for the time the sun is at its brightest. Never use a dense curtain that will cut out the light. They need only enough shade to thin out the sun's rays and cut out some of the heat. This protection will probably be necessary only for a couple of hours. A large picture window offers problems at the same time that it offers more light. Often such a window is too hot for plants to stand close to the glass. Sometimes the plants can be placed on a table within the range of light but out of the heat. A sign of too much heat from the sun is the appearance of burns or scorched areas on the leaves. Let them have all the light possible, short of burning.

There are two reasons for adhering rather strictly to the required night temperatures: (1) most orchids will not set flower buds unless the night temperature is kept within a certain range, and (2) the plants make their best growth at a certain night temperature. Anything above the range often results in a spindly, exhausted plant, while temperatures below the range for any extended period slow down growth. Extremes above or below often cause flower buds to drop.



Cattleya mossiae, the easiest orchid to grow in the house.

The temperature groups into which orchids are fitted are "cool", with nights of 50°; "intermediate", with nights of 55°-60°; and "warm", with nights of 60°-65°. For each group the summer nights can be a little warmer. The temperatures given above are actually for winter nights, or rather, nights when artificial heat is necessary. Orchids from the "intermediate" and "warm" groups can be grown nearly everywhere in this country. However, those in the "cool" group do not do well with the hot summers that are the rule in some sections.

Within each temperature group are some kinds that require a great deal of light and some that are not so demanding. For instance, the "cool" Cymbidium, a lovely orchid that most growers find hard to resist, is so light-

demanding that it is impossible to grow in the home. In this same temperature group *Dendrobium thyrsiflorum* and *Dendrobium densiflorum* demand less light, as does *Zygopetalum mackaii*. If you have a truly bright spot in your house where nights can be maintained at 50° and days at 65° in the winter, you might try these kinds.

For the average home we feel it is wiser to stick to those in the "intermediate" and "warm" group, and within these groups to choose kinds that do not demand an extreme amount of light. This rules out Vanda, for instance, for most homes. It would be impossible to crowd all of the "possibles" for a home into the space of an article. There are growers who, by experimenting through the years, have built up home collections of dozens of kinds, with disappointments taken in stride. What I should like to do is give you a few which are *most likely* to succeed: some to grow on the open window sill, and some to grow in an orchid case. Then, if these do well for you, you can explore the possibilities and try other kinds.* For the window sill, I shall tell you about Cattleyas and Epidendrums, members of the "intermediate" temperature group, and for a case, Phalaenopsis and one type of Dendrobium of the "warm" group.

You have probably heard of a "wardian case", actually a little indoor glass house. It was used long years ago for keeping tender newly collected plants in a growing condition while they were transported from their native habitat to Europe on the slow going vessels of the day. It has now been transformed into what we call an orchid case, with doors, a top to open for ventilation, a rack on which to stand the plants, and a pan to catch water. The sole object of such a case is to furnish a more humid atmosphere than the average home offers. It is ideal for plants that cannot do without this extra humidity, but it has the disadvantage for light-demanding plants of allowing less light than an unobstructed window. Not only does the additional glass cut down the light, but of necessity some of the plants must stand farther from the light source and therefore receive less intense light.

We had already been happily growing a group of Cattleya plants in a window when we acquired an orchid case. Thinking the plants would do better, we put them in the case. It was quite a shock to find that they made only spindly growth there and failed to flower. By comparing the intensity of light entering the case with the amount coming in the window itself, we discovered that plants in the case received 25% less light than in the window. We put the Cattleyas back in the window where they proceeded again to make strong growths that flowered. Apparently, they can do better in a drier atmosphere with plenty of light than in a humid atmosphere with less light. This has been corroborated by many growers who have

*For more information and greater detail see ORCHIDS AS HOUSE PLANTS, D. Van Nostrand Co., Inc., 1955. Written by Rebecca T. Northen as a companion book to HOME ORCHID GROWING.

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had the same experience. The one possible way to use an orchid case for Cattleyas might be to put it in a spot where it receives light from two (or more) sources, thus lighting the plants from all sides.

We saw an opportunity in the orchid case for growing some plants for which our greenhouse was too cool. Accordingly, we purchased some seedlings of Phalaenopsis and *Dendrobium phalaenopsis,* members of the "warm" temperature group, which demand less light than Cattleyas. During the seven years they have lived in the case, they have grown into mature plants that flower faithfully. We have a number of other little orchids in with them now. The case is always attractive, seldom without flowers.



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We bring in the holly, the ivy, the pine
The spruce and the hemlock together we twine;
With evergreen branches our wall we array;
For keeping of Christmas our high holiday.

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BIRDS AT MY DOOR

By MRS. JOHN NICKELS,
President, Federated Garden Clubs

If you're a gardener, homeowner, outdoorsman, or fire-hugger you're a bird lover. Why? Because if you are a gardener birds are your best friends —they eat bugs! If you are an outdoorsman or fire-hugger—they furnish interest and amusement during long winter months. Like eating peanuts, the game of identifying these feathered sprites can be irresistible, so come with us as we introduce you to the gentle art of "birding."

First of all, we who live in Colorado are most fortunate in having large numbers and a great variety of wild birds in the course of a year. Between four and five hundred different species have been identified at some time or other. Don't quail (this isn't a pun) at the prospect of trying to recognize this many. Join a bird club, or if you're not the gregarious type, find an experienced "birder" to go into the field with you. In any case you'll need a well illustrated, well written book small enough to be easily carried in your pocket. Just out is a delightful little booklet by Richard G. Beidleman, "Guide to the Winter Birds of Colorado," put out by the University of Colorado Museum, Boulder, Colorado. Armed with this or perhaps "The Birds of Denver and Mountain Parks" by Neidrach and Rockwell and Peterson's "Field Guide to Western Birds" you are ready for the foray—either indoors or outdoors.

Winter is the best time for you to start. Foliage is at a minimum at this time and there are fewer varieties of birds to confuse you. If wintry blasts make you shudder, you can still play the game. The problem then becomes one of making these shy creatures come to you.

TREES AND SHRUBS ENTICE SHY VISITORS

Food and shelter are basic essentials for people. They are also basic for birds. Many seem to enjoy people and if food and shelter are provided, will stay with us. The best shelters are natural ones. Spruce, pine, and juniper make good roosting places and furnish food. Weed patches offer seeds —we refer of course only to vacant lots or farmers' fields! Apple, cherry, plum, and Russianolive trees give excellent food as do shrubs of honeysuckle, snowberry, currant, and privet. These all have fruits which cling to their branches for winter repast. What ever falls to the ground serves as fare for ground feeding species.

While these are natural means of shelter and food, birds can be lured closer for study and pleasure by means of feeding stations. Place stations on a tree trunk near the house or on a window ledge, or put them at a distance at first, then move them closer. These feeders can be of the most simple construction—any small shelf or box capable of holding food will do. But an open one will be used more than one enclosed on three sides. Only as a last resort will birds use the latter for they are wildings that



Photo courtesy Denver Museum of Natural History

SUMMER PHOTO OF FINCH

prefer being able to make quick getaways in any direction.

At first only English Sparrows may come, but once they can rely on finding food in a particular place, other birds will follow them. In probable succession will come House Finches, then Chickadees, Juncos, White-crowned and Tree Sparrows, Redwings, Flickers, Starlings, Brown Creepers, Nuthatches, Downey and Hairy Woodpeckers, and as the spring migration begins there will be many others. Late spring snows will keep feeding stations busy. At such times be especially generous with food and give variety. Many a stranger may drop in for a bite to eat because stormy weather interrupted his northward flight.

FOOD

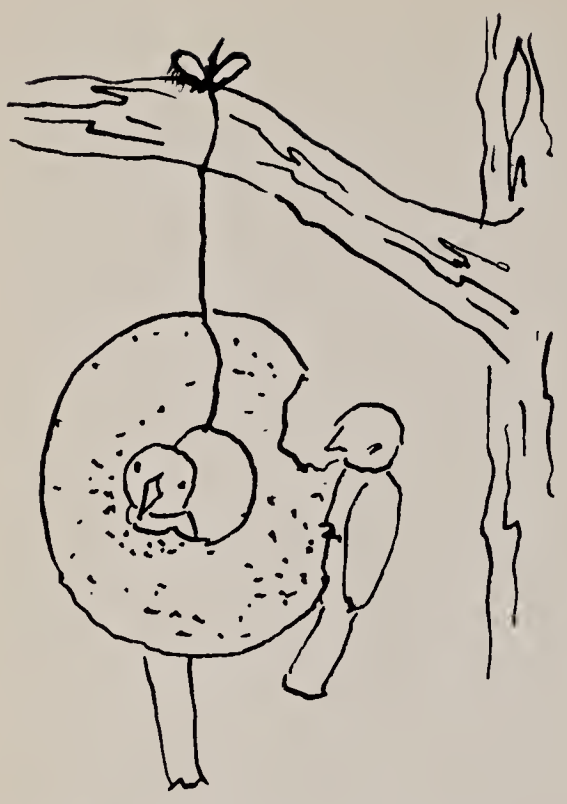
As your interest in these feathered residents increases, variety of food will encourage variety of species. Bread crumbs are probably the most commonly given but the body warming qualities of suet, plain or mixed with other things, is an important diet item as well as a popular one. Nail it to a tree trunk or limb or put it in a mesh bag such as vegetables come in. The mesh will hold the suet, yet allow birds to feed through it. Suet is a favorite of Downey and Hairy Woodpeckers, House Finches, and Robins (yes, Robins stay all winter if fed).

Another choice food is rolled oats saturated with drippings. Fill a cottage cheese carton with rolled oats, any left-over meat scraps, and pour drippings over this. Punch holes on the edges and insert string to fasten the container to a tree limb.

Birds also like nutmeats, raisins, cookies, fruitcake and doughnuts. A doughnut hung by a string from a tree limb is a great treat for Chickadees. Little cakes can be made by rendering suet and adding small seed, oatmeal, cornmeal, or cracked grain. Place in small cups to firm. A short length of string placed in the cup before filling will anchor the cake to a spot.

Peanut butter is relished by all winter birds. It may be mixed with other foods such as suet and small seeds, spread on bread crusts, or simply smeared on the rough bark of





a tree. Sure-fire and irresistible are peanut hearts (Toner, Ins., Denver, sells them for only $2.50 for 100 pounds but smaller amounts may be purchased) and German millet at 4c a pound at any seed store. Sunflower seeds are also welcome along with bird seed mixtures found in pet shops or seed stores.

DISCOURAGE PEST SPECIES

English Sparrows will eat anything they see other birds eating. To keep them from consuming more costly foods, buy some small chicken feed. If this is available to Sparrows at all times they will not bother feeding stations as much. Then too, English Sparrows prefer feeding some distance from a house while many of the more desirable birds will gladly come to a window ledge or feeder placed close to a building. Discourage Blackbirds by suspending small containers by one string or wire. These are quite satisfactory for smaller birds such as Chickadees but larger, heavier birds are not able to balance on them, soon become frustrated, and move on.

TYPES OF FEEDERS

Market-wise there are many types of feeders—nearly all good, but anything that keeps food away from maurauding dogs and cats will do. A simple feeder is made from a slab of wood. Bore shallow, down-slanted holes in it and stuff them with any of the above mentioned tidbits. The addition of wooden perches is helpful. Fasten the slab to a window frame or tree trunk.

Juncos and White-crowned Sparrows prefer eating on the ground. They may be seen scratching for bits that drop to the ground from stations. For them, scatter seed and cracked grain in a hedge or near some shrubbery. This will give them quick refuge should a hungry cat come along. Don't scatter food under low-hanging branches of spruce trees where a cat can lie in hiding.

WHEN TO FEED

Now is the time to put out food to coax birds to stay with us. However, it is better not to feed them at all than to start and then leave on a long winter vacation with no provision for continued feeding. Better then, to let birds locate natural feeding grounds.

Don't forget water. Snow furnishes enough moisture when we have it, but we all know how dry our winters can be. It is perhaps more important to provide water in winter than in summer, for in summer there are always sprinklers, ponds, and lakes.

So now we have introduced you to the fascinating game of "birding." Anyone can play it—indoors or out—and for long, dull winter days it can't be beaten. Join us, won't you?

Give a Christmas Gift to Your Fireplace

TRANSFORM PINE CONES INTO GYPSY FIRE

By CHARLOTTE M. TALBERT

Our wonderful state of Colorado is inhabited by many species of evergreens whose cones are easily adapted for chemical treatment. Such treatment can give many enjoyable hours of colored flames to your Christmas fireplace. Be adventuresome and make some colored cones for yourself or for the fireplace owners on your gift list.

The first step in the cone coloring project is to scour the mountains for them. Make this a family trip and put all available arms and legs to work. Any firm, clean cone can be used. Those of ponderosa pine, Colorado spruce, Douglasfir, and Engelmann spruce are all easy to find and make attractive finished products.

The local chemical supply firms or the pharmacist at your neighborhood drugstore can help you obtain the chemicals needed for your adventure into the magical world of colored flames. The list of "colored fire" possibilities is as follows:

copper sulphate—blue
copper chloride—blue-green
copper nitrate—emerald green
lithium chloride—lavender
potassium nitrate—yellow
potassium chlorate—violet
sodium chlorate (common table salt)—yellow
strontium nitrate—red
calcium chloride—orange
borax—green

Of the materials listed, copper sulphate, or blue vitriol as it is sometimes called, is used the most frequently for colored flames because it is relatively inexpensive, easily available, and gives pleasing results.

Just a word of caution about using these chemicals. Keep in mind that they are acids and will corrode any metallic surface. Be certain to wear rubber gloves and old clothes when treating your cones and plan to work in the garage or some other place set aside for messy projects—this is one of them. Discourage small children and pets from playing in the area as an added precaution.

There are several methods for applying the chemicals to the cones. Beautiful results are attained by putting two cupfuls of the chemical of your choice in a bowl. Stir in enough shellac or another similar carrier to make a mixture which can be applied to the cone with a paint brush. Remember to cover the metal bristle holder of the brush with tape. If you use several colors at once, proportion the chemicals by their cost. Place the cones in a carton until they are dry. This may take several days.

Another method of cone coloring is to brush sodium silicate, an inexpensive adhesive, on the cones and then sprinkle them with the chemicals. Or, a delicate blue coloring in the fire can be obtained by diluting two pounds of copper sulphate in one gallon of water. Put a few cones in a mesh bag and drop them into the solution until they are thoroughly saturated. After letting the excess moisture drip back into the vessel, pour the cones into a paper lined box to dry.

When the cones are ready to test, and the family is gathered around the fireplace to pass judgment on your cone dabblings, don't be too hasty about throwing one in the fire. Wait

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until there are some hot coals and the first heat of the flames has subsided. Otherwise, the chemicals will be consumed so fast that the results of your labors will be lost. Poking the fire frequently helps to prolong the life of the cone and spread the colors on the logs.

Should you wish to add a festive touch to the finished cones, pack them in an attractive box, bag, or even better still in a basket. Adorned with a red satin ribbon you will have a genuine Colorado product to decorate both the inside and outside of your fireplace.

If chemical cone coloring proves too costly or time consuming, an easy solution to the problem is to purchase the product from someone who has already fought and won the battle of the rainbow hues. These gayly colored cones burning in your Christmas fireplace are sure to add to the joyous holiday season.

Merry Christmas

and

Happy New Year

from

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NEW UNIT FOR BOTANIC GARDENS

By ROBERT L. WOERNER, *Director*

The accompanying plan is a preliminary general plan for a proposed Herbaceous Unit of the Denver Botanic Gardens. This new unit will be developed into a testing and display area for ornamental herbaceous plants, suitable for use in the Rocky Mountain Region.

The property on which the Herbaceous Unit is to be developed is centrally located in the city, and is a rectangular area of 18 acres, about 660 by 1140 feet. It has a gentle slope facing west and north. There are no existing plants on it now; it was formerly a cemetery.

It is bounded on the west by Cheesman Park, a well-established park of 80 acres, whose principle feature is a large white marble columned building in the style of a classic Greek temple which forms a logical focal point for a distant view across the Garden.

Botanic Gardens House. This handsome building is very suitable as a central location for offices of various horticultural organizations. It will become the horticultural headquarters of the entire region as well as the offices for the Denver Botanical Gardens. The north wall of the building is good-looking, and will form a fine entrance facade as viewed from the Garden.

The suggested design for the Auditorium unit provides a lobby which would serve as the information and display area of the Garden. The walled garden, placed on the north side of the auditorium unit for maximum protection of the tender plants it will contain, would be lighted, and available to evening visitors. There would be a full basement under the auditorium, containing heating plant, rest rooms, study and classrooms, and a kitchen.

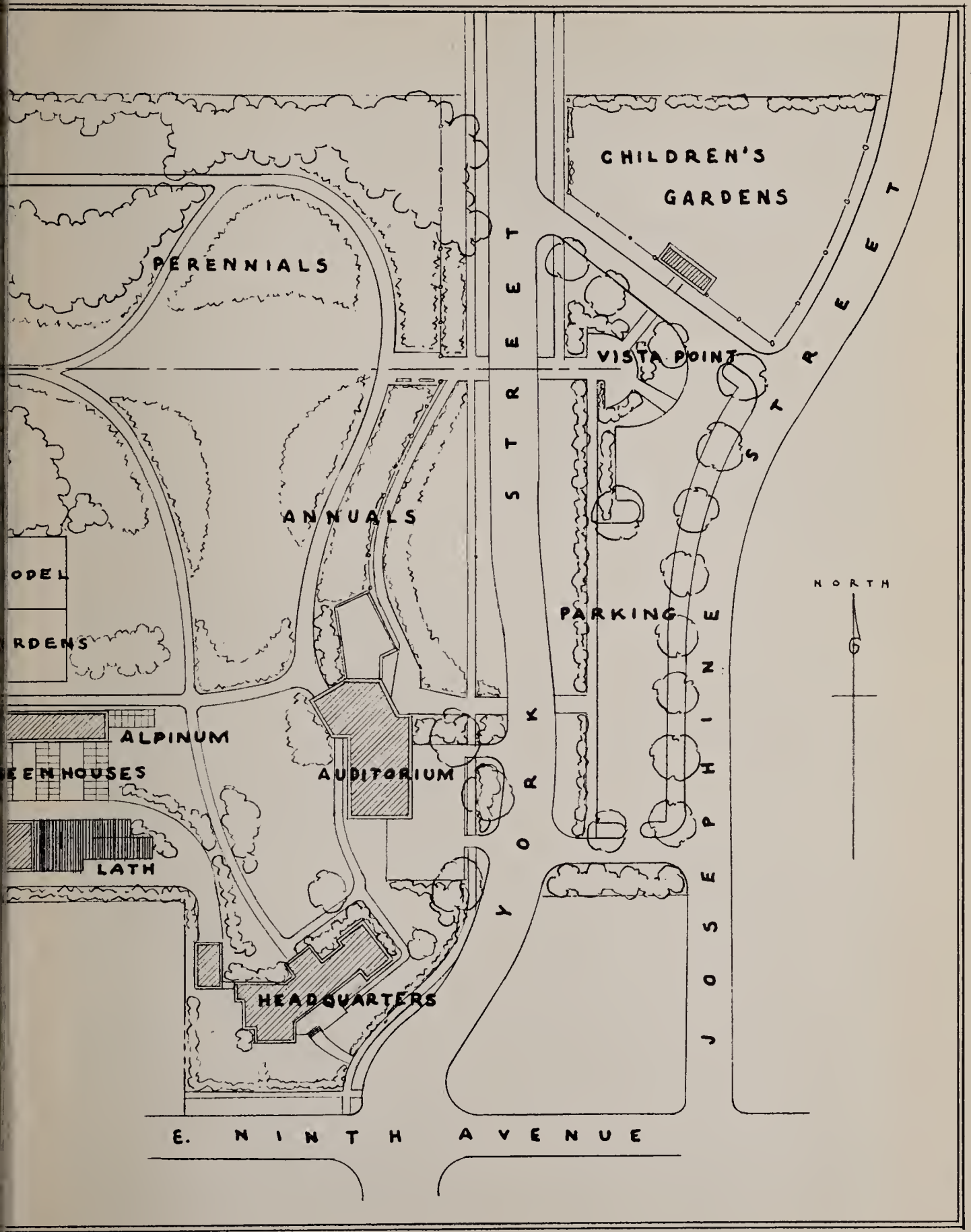
Greenhouses. The greenhouses are planned so that future houses can be added between them. The Alpinum attached to the greenhouse unit can become a drawing card for the whole Garden. People unable to go to the high mountains to see the alpine plants will be able to see them here. Directly outside the Alpinum the rock garden will display plants related to the alpines which will live in the climate and altitude of Denver.

Walks. The walk system is designed so that a visitor can take a self-guided tour around the entire Garden, aided by maps and directories and signs placed at strategic intervals. A tour might be designated by a walk with a particular surfacing or edging. The walk system is also planned so that pickup trucks can reach all parts of the Garden with minimum amount of driving over turf and planted areas. All secondary and minor walks have not been indicated on this plan. Throughout the garden there will be a complete display of walk surfacing materials. *(Cont. on Page 370.)*



HERBACEOUS UNIT
OF THE
DENVER BOTANIC GARDENS

OCTOBER 1958 SCALE: 1" = 100'


CHILDREN'S
GARDENS
PERENNIALS
VISTA POINT
ANNUALS
PARKING
NORTH
ALPINUM
AUDITORIUM
LATH
HEADQUARTERS
E. NINTH AVENUE
YORK STREET
JOSEPHINE STREET

Parking. The narrow strip of land between York Street and Josephine Street, east of the Garden, is best suited for a parking lot. At the north end of the parking lot is a small area for temporary parking, to view the mountains across the Garden. The tall tree-planting along the east side of the strip will help to tie it to the main garden. This planting also will help form the east terminus of the long vista for the building in Cheesman Park. The main crosswalk from the parking lot to the main entrance to the Garden will be on this view axis, aided by a traffic stop light.

THE GARDENS

Children's Gardens. At the north end of the strip of land between York and Josephine Streets there would be a fenced area for children's gardens. This would be a self-contained unit, located where the children would not need to cross either street, since most of them will be brought to the garden in cars or buses.

The Central Garden. The existing wall along the property line common to the Botanic Gardens House and the Herbaceous Garden would be removed, and the building would face out into a central area defined by the Auditorium on the street side, and the Lathhouse-Garage-Staff parking unit, and the Greenhouse unit on the opposite side. The area thus created would be common to all the buildings, and would be a very special show garden, with night lighting, and plantings which would be effective at all seasons. It would contain enough interesting plantings so that some people, unable to walk over the entire garden, would feel they had seen enough to make their visit worthwhile. It could be opened in the evening, whereas the main garden cannot.

Informal Gardens. The view from the main entrance gate west through the length of the Garden to the Cheesman Memorial will benefit by the development of a swale graded into the land under the view line. Along this slope there would be informal plantings, mostly of regional and national natives, used as ornamentals, with such other geographical groups as would fit the purpose. Viewing this planting from the main east-west path, the eye would rest on screen plantings of shrubs and trees in some places, while in others, the eye would travel back into bays, over low plants. Such an arrangement would divide this slope into areas, and create sun and shade situations.

A long panel of grass would swing informally from the flower area at the main entrance to another open grassy bowl at the west end of the Garden. Beyond this an opening of 40 feet would be cut into the evergreen planting in the park to provide a view of the Cheesman Memorial.

Formal Gardens. In contrast to the informal areas on the north side of the property, the buildings, the straight lines of the testing ground and nursery, and the need for formal gardens, dictates that more formal areas be developed on the south half. These will be divided with formal materials, such as walls and fencing, and in this area it is logical to have the material displays for patios, fences, etc. The model gardens, of rectangular size and shape similar to home gardens, will be in this area.

Any treatment of water would be best in this area, to take advantage of the maximum change in the slope. A series of formal pools would drop down through formal gardens to a sunken area with pools for aquatic plants. Below this area an informal water garden would blend with the areas north of it.

Merry Ideas For Nimble Fingers

It's Easy to Make Your Own Christmas Decorations





Soft candlelight adds great charm to a Yuletide setting, but unusual candles are expensive and that is why many people are making their own pretty ones at home — in various shapes, sizes and colors. These instructions for candlemaking from the Rit Home Economics bureau will interest the "do-it-yourselfers."

Select light all-purpose dye colors, such as light green, evening blue, coral or chartreuse, to get a bright shade. Use approximately 2 teaspoons of all-purpose dye for each pound of paraffin. One pound fills three 6-ounce juice concentrate cans or 2 half-pint cream containers. One and three-fourths pounds fills one quart milk carton. Various sizes of gelatin molds or rubber balls cut in half may be used also. Heavy cord makes a good wick.

Punch hole in center of mold just large enough for string to go through. Run a piece of cord through the hole and tie the inside to a pencil placed

across top of mold. Pulling tight, secure other end of cord to outside of mold by knotting and covering with cellophane tape.

Melt paraffin in double boiler or old coffee can placed in pan of water. Color with all-purpose dye. Remove from heat and stir for 3 minutes. (Since all-purpose dye is primarily water soluble, some of the dye will not dissolve but will settle to the bottom.)

Pour melted colored wax into mold. As paraffin hardens, fill hollow with more wax. Unmold. Dip metal mold quickly into hot water to loosen. Cardboard molds can be peeled off.

Using household cement, decorate candles with glitter, sequins, or seals; or with frosted whipped wax, applied with a fork. To make whipped wax, allow colored wax to cool until film forms on top. Whip with a fork until frosting-like consistency, and apply quickly. If it becomes too firm to spread, melt and whip again.

To make ball candles fill both halves of a rubber ball with colored wax and allow to set. Cut heavy cord 1 inch longer than diameter of ball, dip in wax and let harden. Cut groove down center of one flat side of ball. Place wick in groove and pour small layer of hot colored wax on both flat sides and weld together in ball shape.

For a distinctively western and aromatic touch add dried and crushed leaves from sagebrush. The aroma from the burning bits of sagebrush in the candles will perfume the air.

The Federated Garden Clubs suggest making a gayly decorated felt "skirt" for around the base of your Christmas tree. Decorate it with sequins or felt figures glued on with Duco cement (see upper two photos).

A decorative star for your wall or door is made by inserting five little



artificial Christmas trees in a styrofoam ball. These trees can be found in any dime store. Gold tree ornaments with sticks glued into their holders are then stuck into the center of the "star." Brush ornaments with glue and sprinkle them with glitter.

A coat hanger, styrofoam, and nylon netting form the basic materials for the Christmas tree. We wish this could be shown in color because the netting is such a lovely shade of cherry, but any color may be used. Emerald is particularly striking. Buy 1¾ yards of 72-inch nylon net. Cut strips across material — two strips 9 inches wide, one strip each of 8 inches, 7, 6, 5, 4, 3½, 3, 2½, and 2 inches. With thin wire gather each strip around the main wire or stem which is made out of a



straightened coat hanger or of a piece of wire the same thickness as a coat hanger. This is stuck in a styrofoam base 1½ inches thick and 6-7 inches across. Around the wire trunk and between the layers of net, wrap ropes of tinsel—6 yards should be enough—and attach tiny ornaments to the graduated layers. A final ornament on the top finishes this gay little tree.



EVERGREEN HILL

By S. R. DEBOER

Denver's Evergreen Hill in Washington Park is our city's finest planting of native pines, spruces, and firs. It was planted in the spring of 1915. George Carlson, who later was General Superintendent, and Russ Ellenbaas, who is still Superintendent of Washington Park, were planting foremen. Adam Kohankie had charge of the park. They were all capable park men. Talking to Mr. Carlson about this, he enthused, "You know we collected them in the forest behind what is now Brook Forest Inn. I remember carrying them down the steep mountainside two at a time. They were about four feet high." My memory of this collecting trip has to do mostly with scouting for varieties and especially the lack of sleeping quarters, so we played cards until dawn and then we went out on the mountainside.

This was under a commission form of government. City finances were low as usual, and as always in those cases, there was talk of reducing the park areas. In such periods the parks are always referred to as luxuries by those whose vision is too limited to see the great good the parks do.

The Commissioner had given orders not to plant the Evergreen Hill much as we wanted to do it. The plans were carefully drawn and we were ready for it. Fortunately the park secretary lived across the street and was eager to have the park planted. We had to promise to do the job quickly and in such a way that the Commissioner would not be unduly excited over it, in other words, would not see it until it was done.

So here we were planting Evergreen Hill, looking over our shoulders every other minute for fear something would happen to stop us. The Commissioner went out of office the next spring and I believe he never noticed that the Hill was planted. It contains mostly native evergreens, yellow and lodgepole pine, spruce, firs, and junipers but also Eastern white pines and Scotch pines.

So here is Evergreen Hill, now over forty years old.



Photo courtesy Rocky Mountain News

TRIP OF THE MONTH:

Palmer Lake Yule Log Hunt

By MARIAN TALMADGE AND IRIS GILMORE

We're off to Palmer Lake this month to join in the search for the Yule Log, a nice tradition built up over the past 25 years. An invitation reminded us:

"Kindle the Christmas Brand, and then
Till sunset let it burn,
Which quenched, then lay it up agen
Till Christmas next return.
Part must be kept wherewith to teend
The Christmas Log next year,
And where 'tis safely kept, the fiend
Can do no mischief there."

We left Denver on the Valley Highway, then drove south on U.S. 87. The fields and hills had donned their brown winter coats trimmed occasionally with strips of green winter wheat and a few pockets of snow.

At the Happy Canyon road sign we turned right and dropped down quickly along the winding graveled road.

Almost immediately we drove between tall pines. After a couple of miles we joined U.S. 85, turned right and drove to Johnson's Corner. Here we turned left on State 67, crossed the D&RG and Santa Fe railroad tracks, and drove through Sedalia.

This small hamlet always reminds us of a set out of a TV western with its false-front abandoned stores seeming to wait for the Wells Fargo stage to come rattling down Jarre Canyon road with all the mail.

We crossed East Plum Creek, which is usually dry, then turned left on State 105. This is the Perry Park road, in spring and summer like a bit of New England dropped into a Colorado valley.

The road follows a somewhat narrow winding valley with the Rampart Range covered with spruce and pine rising abruptly to the west. There was plenty of snow on the mountainsides and the evergreens looked as though they had been sprinkled with powdered sugar. To the east were dun-colored mesa hills.

Perry Park has many prosperous ranches with herds of white-faced Herefords, stolid black Angus, some Guernsey, and the newly introduced Santa Gertrudis cattle.

Most of these ranches have gigantic barns, some painted a bright red or white, others weather-beaten. The houses are mostly Victorian, two-story structures with large porches, ells, and studded with small windows. In contrast, there are a few contemporary houses seeming strangely out of place.

On the right we passed the picturesque Perry Park church with its old cemetery completely surrounded by spruce trees.

About five miles from Sedalia we saw the Jackson Creek road turning to the right. Above the road we caught a glimpse of Devil's Head etched boldly against the bright blue sky.

Most of the colors were muted this time of year—only the sky and the evergreens held their vivid shades. An occasional green yucca lifted its sharp spikes, but almost everything else chose tints from the tans, buffs and browns. A few bushes flaunted yellow and red branches, and a deep maroon in some grasses contrasted sharply with the dull hillsides.

Just before reaching Palmer Lake, the valley widened and we saw the railroad tracks swing into view. A huge red barn to our left was a remembered landmark, and as we rounded a curve there was Palmer Lake—village as well as lake.

This lake, usually a blue gem, was frozen into glittering whiteness. The village of Palmer Lake looked like a living Christmas card with snow-topped houses hugging the mountainsides.

Cars parked at every conceivable angle jammed the road. People walked about greeting each other merrily.

We hurried to the Town Hall to rent gay red capes and hoods which added to the festive occasion. It was unthinkable to hunt for the Yule Log dressed in ordinary clothes.

Suddenly a trumpet sounded sharply through the thin dry air. It was one o'clock—time to start the Yule Log hunt. The leader beckoned from the steps and we fell in behind him, climbing up the hillside.

We walked past the Little Log Church up Vaile Gulch and on north across the mountainside. Gazing about, we decided it was a motley crew. There were youngsters—happy, jumping about with the gaiety of youth, taking dozens of extra steps and dart-

ing back and forth into the woods like curious squirrels.

There were oldsters, taking to the trail more slowly, picking their careful way. But their faces were lit with a certain determination and we heard snatches of conversation telling how many hunts they'd attended.

Then there were all the in-between folks, every one hoping to find the prize—the Yule Log—hidden weeks before, and tied with a hempen rope for identification.

Every once in a while the group would pause to sing a Christmas song —"Joy to the World," "Deck the Halls with Ivy," "The First Noel," and an ancient tune, "Song of the Christmas Log."

Finally the leader stopped and held up his hand. "The Yule Log is hidden some place in this vicinity," he cried.

A great roar went up as the crowd fanned out on to the snowy hillside.

We scrambled through the underbrush, dug frantically in what we thought were likely places. As we bruised a stunted juniper, its pungent smell filled our noses. Branches snapped and the snow fell, cold against our cheeks, from the disturbed trees.

At last we heard a shout to the left and a young boy yelled, "Here it is! Here it is! I found it!"

We hurried over and sure enough, there it was—a notched log with a hempen rope tied around it. Other persons joined the boy who scratched frantically. Finally several men lifted the log up and brushed off the leaves and snow. Someone sat the boy on top of it—his prize was to be carried down on the log—and then we started back, shouting and singing triumphantly.

A giant bonfire before the Town Hall greeted us. Bernard Vessey from Colorado Springs and his Temple Quartette were singing Christmas carols inside. Someone brought a large saw, and he and the victor sawed the log into two pieces.

As we pushed into the hall we smelled the sharp odor of the wassail bowl. Miss Evalena Macy, founder of the Yule Log tradition in Palmer Lake, ladled the first cup and handed it to the triumphant finder of the log.

Then we joined the line and soon had our share of the hot, spicy drink and crisp cinnamon cookies.

Someone lit the remaining half of last year's Yule Log in the mammoth fireplace. Then as every one started singing "Kindle the Christmas Log," the door burst open and several men entered carrying half of the new one. They tossed it on the fire where the flames leaped and crackled noisily as the pitch caught fire.

There were more songs and friendly chatting among neighbors, visitors and



Photo courtesy Rocky Mountain News

Evalena Macy fills the traditional wassail cup to give to the lucky finder of the Yule Log.

friends. By now it was dusk and time to start home. As we hurried to our car a hush seemed to settle over the little village. We glanced up toward Sundance Mountain where a giant star burst suddenly into view—the brightest and biggest one we'd ever seen.

It was Palmer Lake's own "Star of Bethlehem" made of almost a hundred electric lights strung in star shape on the hillside—the villagers' own symbol of hope for peace on earth.

The soft strains of "Silent Night, Holy Night" floated on the frost-laden air as we thought, what a wonderful way to start Christmas week on this last Sunday before that bright holiday.

TINY DWARF SPRUCE

Tiny dwarf spruce is the dwarf form of *Picea omorika,* also called Serbian Spruce. A 12-year-old plant is mentioned (and pictured) in Gardeners Chronicle (Jan. 5, '57) as about 12 inches in circumference. *Picea omorika nana* is said to have started as a "witches' broom" on a normal tree in Holland. It is not particular as to soil, as long as it is well drained and does not dry out in summer.—M.W.P.



These things we think of when we say: "We wish you joy on Christmas Day."
Peace that fills your life and heart, gladness that will not depart; hope to constantly abide; Faith that God will safely guide — these things we think of, pray for, too, when wishing Christmas joy for you.

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GARDEN CLUB NEWS

By MRS. H. O. DUSTON, *Federated Garden Clubs, Inc.*

"Western Gardeners' Round-Up" was the theme for the 28th annual convention of the Colorado Federation of Garden Clubs held in Greeley, Colorado. The Trail Blazer's luncheon and the chuckwagon dinner lent western spirit to business and program. More than 200 delegates registered from 111 garden clubs and 21 junior clubs, representing a membership of 3100.

Distinguished guests were Mrs. Daniel J. Mooney, Butte, Montana, president of the National Council, and Mrs. Garnett S. Cuddy, Mission, Kansas, Rocky Mountain Regional director. Mrs. Mooney addressed the convention predicting "a fruitful future for garden clubs growing from the sturdy roots established in the past."

After completing a successful term, Mrs. John Nickels, Littleton, was re-elected president of the Colorado Federation. Mrs. D. W. Viles, Durango, was elected first vice president, Mrs. G. A. Seastone, Englewood, recording secretary, and Mrs. Maurice Johnson, Arvada, treasurer.

In 18 categories of garden club activity, 28 certificates and 92 ribbons were awarded to clubs for their work. Of 44 flower shows staged last spring and summer, 24 were awarded the Blue Ribbon of Merit, having scored a grade of 90% or over. Red Ribbons of Merit went to 19 shows for a grade of 85% or over. The Grand Junction Garden Club and The Green Thumb Club of Denver were awarded the coveted Purple Ribbon given by the National Council for 1957 shows.

A new series of the Flower Show school began this fall with 25 students enrolling in Course I for credit, and many others coming part time for the subjects in which they were interested. Mrs. Earl Powell, Roswell, New Mexico, taught horticulture, Miss Irene Haddox, Dallas, Texas, taught flower arrangement. Plans are under way for Course II early next year.

Mrs. John Nickels and Mrs. F. S. Mattocks attended the fall board meeting of the National Council of State Garden Clubs, Inc. at New Bern, North Carolina. It was at this meeting that Colorado's name was added to the honor roll of 100% contribution to the Permanent Home Fund, a figure equal to one dollar per member. This was made possible by a generous gift from Mrs. F. S. Mattocks. The new home of the Federation is located in St. Louis, Missouri, and will be dedicated in May 1959.

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GARDEN ACTIVITIES FOR DECEMBER

December! It's a difficult month to think about gardening, but perhaps a bit of reminiscing will put us in the right frame of mind.

Remember when the most anticipated thrill of Christmas was a trip to the mountains in search of a Christmas tree? Abuses of this privilege and population growth have practically eliminated the custom, but under the supervision and through the generosity of the U. S. Forest Service, this delightful family tradition can still be carried on. Certain areas have been set aside where you can pick out and cut your own. If you are interested, just call the nearest Forest Service Office in your locale. Another idea is to select at your local nursery a container-grown living tree which can be planted later.

To make your Christmas a safe and happy one, follow these rules:

1. Select a fresh tree and if possible use a stand that holds water in its base.

2. Don't decorate with inflammable materials or use frayed light cords. (P.S. to fathers and grandfathers: don't set up electric trains under the tree.)

Indoor gardening with house plants is an important consideration this month. The essentials they need are light, temperature, water, soil, and fertilization.

1. Light. Flowering house plants and succulents like plenty of light such as an east window or a south window will give. However, some foliage plants prefer indirect light.

2. Temperature. Most house plants will take the high temperatures of a home but few can stand anything below 40 degrees for any length of time. If severe cold weather is forecast, move your plants back from the window.

3. Water. Keep the soil around your plants moist but not wet. Occasionally check the soil for moisture. This will help you set up a regular watering schedule.

4. Humidity. The average home lacks sufficient humidity for proper plant growth. Placing your flower pots on pebbles in a shallow tray filled with water will help correct this and frequent spraying or syringing of the foliage is beneficial. Special syringes for this purpose may be purchased at nurseries or garden shops.

5. Soils. House plants do best in light loamy soils. There are many good commercially packaged potting soils but if you want to mix your own use one-third sharp sand, one-third



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peat moss, and one-third garden soil.

6. Fertilizers. House plants do need a boost occasionally, but it's easy to over fertilize them. Plants will receive ample food if a soluable fertilizer is added to water once a month.

7. Insects. Insect problems are practically non-existent for house plants but two exceptions are mealy bugs and mites. Both can be controlled with malathion. It has a disagreeable odor so spray your plants outdoors on a warm day.

Bulbs. Improper storage can cause serious loss of favorite dahlias or glads. By checking occasionally you can adjust your storage conditions to keep losses to a minimum.

If our present weather pattern holds, you will have some pleasant days to work in the garden this month. It's still not too late to hill up roses or to mulch shrubs and trees. And this is your last chance to plant bulbs providing the soil is workable.

Trimming of most trees and shrubs can be done now. If you have large trees, consult an arborist. He can give you sound advice. Now that the structural make up of the tree is apparent, he should be able to tell you of any structural weaknesses that might need attention before heavy snows. Rejuvenate old overgrown shrubs by removing large canes down to the ground. The beauty of trees and shrubs is not just in their foliage. Notice the graceful lines and symmetry they present against the December sky.

Mrs. Nickels' bird article on page 362 should give you many ideas for winter shelters and food. Be especially considerate of them when the ground is covered with snow. They'll return the favor next summer by eating insect pests in your garden.

Christmas shopping for gardening friends should be easy. *The Green Thumb* makes an excellent gift, valuable throughout the year. Garden books such as *How to Have Good Gardens in the Sunshine States* by George Kelly are good choices. House plants, planters, garden tools, and gift certificates are but a few of the many items you will find at your local nursery or garden shop. Have a Merry Christmas!—PAT.

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